

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

LG. PHILIPS LCD CO., LCD)
)
Plaintiff,)
)
v.) Civil Action 06-726-JJF
)
CHI MEI OPTOELECTRONICS CORPORATION;) DEMAND FOR JURY TRIAL
AU Optronics CORPORATION; AU)
OPTRONICS CORPORATION AMERICA;)
TATUNG COMPANY; TATUNG COMPANY OF)
AMERICA, INC.; AND VIEWSONIC)
CORPORATION,)
)
Defendants.)

**DECLARATION OF EDMOND D. JOHNSON IN SUPPORT OF DEFENDANT
VIEWSONIC CORPORATION'S MOTION TO STAY**

I, Edmond D. Johnson, declare:

1. I am an attorney at law duly licensed to practice law in the State of Delaware and before this Court. I am a partner with the law firm Pepper Hamilton LLC, co-counsel of record for defendant ViewSonic Corporation (“ViewSonic”) in this matter. I make this declaration in support of ViewSonic’s Motion to Stay the instant action. I have personal knowledge of the facts set forth in this declaration and, if called upon, I could and would testify competently thereto.

2. Attached hereto as Exhibit A is a true and correct copy of the Second Amended or Supplemental Complaint for Patent Infringement filed in the United States District Court for the Central District of California, Case No. CV-02-6775 CBM (JTLx) (“Case No. 02-6775”), by LG. Philips LCD Co., Ltd. (“LPL”) against Tatung Co. of America, Tatung Company and Chunghwa Picture Tubes, Ltd. on December 8, 2005

(exhibits to the complaint are not attached). The court docket in this case, obtained from PACER, indicates the original complaint was filed on April 29, 2003. The complaint in Case No. 02-6775 alleges infringement of U.S. Patent Nos. 4,624,737 ('737), 5,825,449 ('449), 6,373,537 ('537), 6,020,942 ('942), 6,002,457 ('457) and 5,926,237 ('237).

3. Attached hereto as Exhibit B is a true and correct copy of the Complaint for Patent Infringement filed by LPL against Jean Company Ltd. on April 24, 2003 in the United States District Court for the Central District of California, Case No. CV-03-2866 ("Case No. 03-2866"). The complaint in Case No. 03-2866 alleges infringement of the '737, '449, '537, '457 and '237 Patents.

4. Attached hereto as Exhibit C is a true and correct copy of the Complaint for Patent Infringement filed by LPL against Lite-On Technology Corporation and Lite-On Technology International Incorporated on April 24, 2003 in the United States District Court for the Central District of California, Case No. CV-03-2884 ("Case No. 03-2884"). The complaint in Case No. 03-2884 alleges infringement of the '737, '449, '537, '457 and '237 Patents.

5. Attached hereto as Exhibit D is a true and correct copy of the Complaint for Patent Infringement filed by LPL against TPV Technology, Ltd. and Envision Peripherals, Inc. on April 24, 2003 in the United States District Court for the Central District of California, Case No. CV-03-2885 (Case No. "03-2885"). The complaint in Case No. CV-03-2885 alleges infringement of the '737, '449, '537, '457 and '237 Patents.

6. Attached hereto as Exhibit E is a true and correct copy of the Complaint for Patent Infringement filed by LPL against ViewSonic on April 24, 2003 in the United States District Court for the Central District of California, Case No. CV-03-2886 ("Case No. 03-2886"). The complaint in Case No. 03-2886 alleges infringement of the '737, '449, '537, '457 and '237 Patents.

7. Attached hereto as Exhibit F is a true and correct copy of the August 19, 2003 Order Consolidating Cases for Pre-Trial Purposes and Scheduling Claim Construction Briefing. This Order consolidated Case Nos. 02-6775, 03-2886, 03-2866, 03-2884, and 03-2885 in the United States District Court for the Central District of California for all pre-trial purposes, including claim construction.

8. Attached hereto as Exhibit G is a true and correct copy of the January 19, 2007 Amended Order Dismissing Plaintiff's Side-Mount Patent Infringement Claims for Lack of Standing. This Amended Order dismissed claims for infringement of the '237, '457, '942, and '537 Patents as asserted (i) against defendants Chunghwa Picture Tubes, Ltd., Tatung Company of America and Tatung Company in lead Case No. 02-6775, and (ii) against defendants ViewSonic, Jean Company Ltd, Lite-On Technology, TPV Technology, and Envision Peripherals, Inc. in consolidated Case Nos. 03-2886, 03-2866, 03-2884 and 03-2885.

9. Attached hereto as Exhibit H is a true and correct copy of the November 21, 2006 Verdict Form in Case No. 02-6775. The Verdict Form reflects a jury verdict with respect to claims of infringement of the '449 and '737 Patents.

10. Attached hereto as Exhibit I is a true and correct copy of the Complaint for Patent Infringement filed by LPL against Tatung Company, Tatung Company of America, Inc., and ViewSonic on May 27, 2004 in the United States District Court for the District of Delaware, Case No. 04-343 (“Case No. 04-343”). The complaint in Case No. 04-343 alleges infringement of U.S. Patent Nos. 6,498,718 ('718) and 6,501,641 ('641).

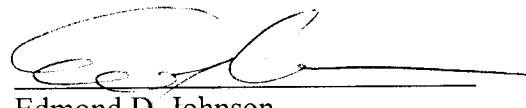
11. Attached hereto as Exhibit J is a true and correct copy of the Complaint for Patent Infringement filed by LPL against Tatung Company, Tatung Company of America, Inc., Chunghwa Picture Tubes, Ltd., and ViewSonic on May 13, 2005 in the United States District Court for the District of Delaware, Case No. 05-292 (“Case No. 05-292”). The complaint in Case No. 05-292 alleges infringement of U.S. Patent Nos. 6,738,121 ('121) and 5,019,002 ('002).

12. Attached hereto as Exhibit K is a true and correct copy of the Special Verdict Form in Case No. 05-292, dated July 27, 2006. The verdict form reflects a jury verdict with respect to claims of infringement of the '002 Patent.

13. Attached hereto as Exhibit L is a true and correct copy of the draft Judgment from the Patents County Court in the United Kingdom, Claim No. PAT 04022. This draft was subject only to parties' counsel having an opportunity to review it for typographical and similar errors. This Judgment disposed of claims of infringement of U.K. Patent No. 2,345, 464, which is understood to be the foreign counterpart to the '718 and '641 Patents.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed this 6th day of April, 2007 at Wilmington, Delaware.



Edmond D. Johnson

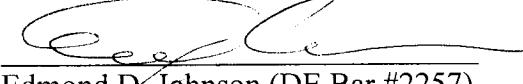
CERTIFICATE OF SERVICE

I, Edmond D. Johnson, hereby certify that on the 6th day of April, 2007, I caused a copy of the foregoing ***Declaration of Edmond D. Johnson In Support Of Defendant ViewSonic Corporation's Motion To Stay*** to be filed with the Clerk of the Court using CM/ECF, which will send automatic notification of the filing to the following:

Richard D. Kirk, Esquire
Ashley B. Stitzer, Esquire
The Bayard Firm
222 Delaware Avenue, Suite 900
P.O. Box 25130
Wilmington, DE 19899

Frederick Cottrell, III, Esquire
Anne Shea Gaza, Esquire
Richards Layton & Finger PA
One Rodney Square
P.O. Box 551
Wilmington, DE 19899

David Ellis Moore, Esquire
Potter Anderson & Corroon, LLP
Hercules Plaza,
1313 N. Market St., 6th Fl.
P.O. Box 951
Wilmington, DE 19899-0951



Edmond D. Johnson (DE Bar #2257)

EXHIBIT A

1 ANDREA SHERIDAN ORDIN (CA SBN 38235)
2 DAVID L. SCHRADER (CA SBN 149638)
3 MORGAN, LEWIS & BOCKIUS LLP
4 300 South Grand Avenue
5 Twenty-Second Floor
6 Los Angeles, CA 90071-3132
7 Tel: (213) 612-2500
8 Fax: (213) 612-2501

9 ANN A. BYUN (CA SBN 161593)
10 MORGAN, LEWIS & BOCKIUS LLP
11 1701 Market Street
12 Philadelphia, PA 19103
13 Tel: (215) 963-5000
14 Fax: (215) 963-5001

15 ANTHONY C. ROTH (admitted *pro hac vice*)
16 NATHAN W. MCCUTCHEON (admitted *pro hac vice*)
17 MORGAN, LEWIS & BOCKIUS LLP
18 1111 Pennsylvania Avenue, N.W.
19 Washington, D.C. 20004
20 Tel: (202) 739-3000
21 Fax: (202) 739-3001

22 Attorneys for Plaintiff and Counterclaim Defendant
23 LG. PHILIPS LCD CO., LTD.

24
25 UNITED STATES DISTRICT COURT
26 CENTRAL DISTRICT OF CALIFORNIA
27

28 LG. PHILIPS LCD CO., LTD.,
19 Plaintiff,
20

21 vs.
22 TATUNG CO. OF AMERICA,
23 TATUNG COMPANY AND
CHUNGHWA PICTURE TUBES,
LTD.,

24 Defendants.

25 AND RELATED COUNTERCLAIM.
26

Case No. CV-02-6775 CBM (JTLx)

**SECOND AMENDED OR
SUPPLEMENTAL COMPLAINT
FOR PATENT INFRINGEMENT**

[DEMAND FOR JURY TRIAL]

1 Plaintiff and counterclaim defendant LG.Philips LCD Co., Ltd. ("LPL"), by
 2 its undersigned attorneys, complains of Defendants and alleges as follows:

3 **JURISDICTION AND VENUE**

4 1. This is an action for patent infringement, arising under the patent laws
 5 of the United States, Title 35 of the United States Code, § 1, *et seq.* This court has
 6 jurisdiction over the subject matter of this action pursuant to Title 28 of the United
 7 States Code, §§ 1331 and 1338(a).

8 2. Venue is proper in this judicial district under Title 28 of the United
 9 States Code, §§ 1391(b), 1391(c), 1391(d) and 1400(b).

10 **PARTIES**

11 3. Plaintiff LPL is a corporation organized under the laws of the Republic
 12 of Korea having a place of business located in Seoul, Korea.

13 4. LPL is informed and believes, and on that basis alleges, that Defendant
 14 Tatung Co. of America ("Tatung America") is a corporation existing under the laws
 15 of the State of California having a place of business located at 2850 El Presidio
 16 Street, Long Beach, California.

17 5. LPL is informed and believes, and on that basis alleges, that Defendant
 18 Tatung Company ("Tatung") is a corporation existing under the laws of Taiwan and
 19 is the parent company of Tatung America.

20 6. LPL is informed and believes, and on that basis alleges, that Defendant
 21 Chunghwa Picture Tubes, Ltd. ("CPT") is a corporation existing under the laws of
 22 Taiwan and is a subsidiary of Defendant Tatung. LPL is informed and believes,
 23 and on that basis alleges, that CPT maintains a sales office at 550 Nutman Street,
 24 Santa Clara, California.

25 **LPL'S PATENTS-IN-SUIT**

26 7. LPL is the owner by assignment of all rights, title and interest in and to
 27 United States Patent No. 4,624,737 ("the '737 patent"), issued on November 25,
 28

1 1986, entitled "Process for Producing Thin-Film Transistor." A true and correct
2 copy of the '737 patent is attached hereto as Exhibit "A."

3 8. LPL is the owner by assignment of all rights, title and interest in and to
4 United States Patent No. 5,825,449 ("the '449 patent"), issued on October 20, 1998,
5 entitled "Liquid Crystal Display Device and Method of Manufacturing the Same."
6 A true and correct copy of the '449 patent is attached hereto as Exhibit "B."

7 9. LPL is the owner by assignment of all rights, title and interest in and to
8 United States Patent No. 6,373,537 ("the '537 patent"), issued on April 16, 2002,
9 entitled "Computer Having Liquid Crystal Display Between Frames Attached at the
10 Edges." A true and complete copy of the '537 patent is attached as Exhibit "C."

11 10. LPL is the owner by assignment of all rights, title and interest in and to
12 United States Patent No. 6,020,942 ("the '942 patent"), issued on February 1, 2000,
13 entitled "Computer Having Liquid Crystal Display." A true and complete copy of
14 the '942 patent is attached as Exhibit "D."

15 11. LPL is the owner by assignment of all rights, title and interest in and to
16 United States Patent No. 6,002,457 ("the '457 patent"), issued on December 14,
17 1999, entitled "Computer Having Liquid Crystal Display." A true and complete
18 copy of the '457 patent is attached as Exhibit "E."

19 12. LPL is the owner by assignment of all rights, title and interest in and to
20 United States Patent No. 5,926,237 ("the '237 patent"), issued on July 20, 1999,
21 entitled "Computer Having Liquid Crystal Display." A true and complete copy of
22 the '237 patent is attached as Exhibit "F."

23 **DEFENDANTS' INFRINGEMENT OF LPL'S PATENTS**

24 13. LPL is informed and believes, and on that basis alleges, that Defendant
25 CPT manufactures liquid crystal display ("LCD") panels that infringe LPL's
26 patents as set forth in the claims that follow, and that Tatung incorporates those
27 LCD panels into products, such as monitors, and that Tatung America, Tatung's
28

1 sales and distribution subsidiary, imports into and sells in the United States,
2 including within this judicial district, products that include such CPT LCD panels.

3 14. LPL is informed and believes, and on that basis alleges, that CPT
4 maintains a sales representative in California, has demonstrated and offered for sale
5 LCD products in this judicial district, and sells to California customers LCD panels
6 (and/or products with LCD panels incorporated therein) that infringe LPL's patents
7 as set forth in the claims that follow.

8 15. LPL is informed and believes, and on that basis alleges, that Tatung,
9 Tatung America, and CPT are working in concert to import and sell in the United
10 States infringing LCD panels (and/or products with infringing LCD panels
11 incorporated therein).

FIRST CLAIM FOR RELIEF

(INFRINGEMENT OF THE '737 PATENT)

16. LPL incorporates by this reference paragraphs 1 through 15 above, as
though fully set forth herein.

16 17. Defendants have infringed and are infringing the '737 patent by
17 making, using, selling, offering for sale and/or importing into the United States
18 products manufactured by a process covered by one or more claims of the '737
19 patent, by actively inducing and encouraging others to do so and/or by contributing
20 to such infringement.

21 18. Defendants have infringed and are infringing the '737 patent with
22 knowledge of LPL's patent rights and without a reasonable basis for believing that
23 Defendants' conduct is lawful. Defendants' acts of infringement have been willful,
24 deliberate, and in reckless disregard of LPL's patent rights, and will continue unless
25 enjoined by this Court.

26 19. By reason of the foregoing, LPL has been damaged and will continue
27 to sustain damages in an amount to be determined at trial and has suffered and will
28 continue to suffer irreparable loss and injury.

SECOND CLAIM FOR RELIEF

(INFRINGEMENT OF THE '449 PATENT)

20. LPL incorporates by this reference paragraphs 1 through 15 above, as though fully set forth herein.

21. Defendants have infringed and are infringing the '449 patent by making, using, selling, offering for sale and/or importing into the United States products covered by one or more claims of the '449 patent, by making, using, selling, offering for sale and/or importing into the U.S. products manufactured by a process covered by one or more claims of the '449 patent, by actively inducing and encouraging others to do so and/or by contributing to such infringement.

22. Defendants have infringed and are infringing the '449 patent with knowledge of LPL's patent rights and without a reasonable basis for believing that Defendants' conduct is lawful. Defendants' acts of infringement have been willful, deliberate, and in reckless disregard of LPL's patent rights, and will continue unless enjoined by this Court.

23. By reason of the foregoing, LPL has been damaged and will continue to sustain damages in an amount to be determined at trial and has suffered and will continue to suffer irreparable loss and injury.

THIRD CLAIM FOR RELIEF

(INFRINGEMENT OF THE '537 PATENT)

24. LPL incorporates by this reference paragraphs 1 through 15 above, as though fully set forth herein.

25. Defendants have infringed and are infringing the '537 patent by making, using, selling, offering for sale and/or importing into the United States products covered by one or more claims of the '537 patent, by actively inducing and encouraging others to do so and/or by contributing to such infringement.

26. Defendants have infringed and are infringing the '537 patent with knowledge of LPL's patent rights and without a reasonable basis for believing that

1 their conduct is lawful. Defendants' acts of infringement have been willful,
2 deliberate, and in reckless disregard of LPL's patent rights, and will continue unless
3 enjoined by this Court.

4 27. By reason of the foregoing, LPL has been damaged and will continue
5 to sustain damages in an amount to be determined at trial and has suffered and will
6 continue to suffer irreparable loss and injury.

FOURTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '942 PATENT)

9 28. LPL incorporates by this reference paragraphs 1 through 15 above, as
10 though fully set forth herein.

11 29. CPT has infringed and is infringing the '942 patent by making, using,
12 selling, offering for sale and/or importing into the United States products covered
13 by one or more claims of the '942 patent, by actively inducing and encouraging
14 others to do so and/or by contributing to such infringement.

15 30. By reason of the foregoing, LPL has been damaged and will continue
16 to sustain damages in an amount to be determined at trial and has suffered and will
17 continue to suffer irreparable loss and injury.

FIFTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '457 PATENT)

31. LPL incorporates by this reference paragraphs 1 through 15 above, as
though fully set forth herein.

22 32. Defendants have infringed and are infringing the '457 patent by
23 making, using, selling, offering for sale and/or importing into the United States
24 products covered by one or more claims of the '457 patent, by actively inducing
25 and encouraging others to do so and/or by contributing to such infringement.

26 33. Defendants have infringed and are infringing the '457 patent with
27 knowledge of LPL's patent rights and without a reasonable basis for believing that
28 their conduct is lawful. Defendants' acts of infringement have been willful,

1 deliberate, and in reckless disregard of LPL's patent rights, and will continue unless
2 enjoined by this Court.

3 34. By reason of the foregoing, LPL has been damaged and will continue
4 to sustain damages in an amount to be determined at trial and has suffered and will
5 continue to suffer irreparable loss and injury.

SIXTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '237 PATENT)

8 35. LPL incorporates by this reference paragraphs 1 through 15 above, as
9 though fully set forth herein.

10 36. Defendants have infringed and are infringing the '237 patent by
11 making, using, selling, offering for sale and/or importing into the U.S. products
12 manufactured by a process covered by one or more claims of the '237 patent, by
13 actively inducing and encouraging others to do so and/or by contributing to such
14 infringement.

15 37. Defendants have infringed and are infringing the '237 patent with
16 knowledge of LPL's patent rights and without a reasonable basis for believing that
17 their conduct is lawful. Defendants' acts of infringement have been willful,
18 deliberate, and in reckless disregard of LPL's patent rights, and will continue unless
19 enjoined by this Court.

20 38. By reason of the foregoing, LPL has been damaged and will continue
21 to sustain damages in an amount to be determined at trial and has suffered and will
22 continue to suffer irreparable loss and injury.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff LPL prays for relief against Defendants Tatung America, Tatung and CPT as follows:

26 1. For a judgment that Defendants have infringed LPL's United States
27 Patent Nos. 4,624,737, 5,825,449, 6,373,537, 6,020,942, 6,002,457, and 5,926,237;

1 2. For preliminary and permanent injunctive relief against Defendants'
2 further infringement of LPL's United States patents;

3 3. For an award of damages for Defendants' infringement of LPL's
4 patents, together with interest, costs and disbursements as fixed by this Court under
5 Title 35 of the United States Code § 284;

6 4. For a determination that Defendants' infringement is willful, and an
7 award of trebled damages under Title 35 of the United States Code § 284, for
8 infringement of LPL's patents;

9 5. For a determination that this is an exceptional case within the meaning
10 of Title 35 of the United States Code § 285 and an assessment of LPL's reasonable
11 attorneys' fees; and

12 6. For such other and further relief as the Court deems just and proper.

13 Dated: November 14, 2005

ANDREA SHERIDAN ORDIN
DAVID L. SCHRADER
ANN A. BYUN
ANTHONY C. ROTH
NATHAN W. MCCUTCHEON
MORGAN, LEWIS & BOCKIUS LLP

17 By



David L. Schrader
Attorneys for Plaintiff and
Counterclaim Defendant
LG.PHILIPS LCD CO., LTD.

JURY TRIAL DEMAND

Plaintiff and counterclaim defendant LG.Philips LCD Co., Ltd. hereby demands a trial by jury on all issues properly triable by jury.

Dated: November 14, 2005

ANDREA SHERIDAN ORDIN
DAVID L. SCHRADER
ANN A. BYUN
ANTHONY C. ROTH
NATHAN W. McCUTCHEON
MORGAN, LEWIS & BOCKIUS LLP

By

Digitized by srujanika@gmail.com

David L. Schrader
Attorneys for Plaintiff and
Counterclaim Defendant
LG.PHILIPS LCD CO., LTD.

EXHIBIT B

Boise-195984.1 0000000-00001

FILED
04-24-03

1 JEFFREY N. BROWN (SBN 105520)
2 WILFREDO HERNANDEZ, JR. (SBN 200917)
3 MORGAN, LEWIS & BOCKIUS LLP
300 South Grand Avenue
3 Twenty-Second Floor
Los Angeles, CA 90071-3132
4 Tel: (213) 612-2500
5 Fax: (213) 612-2501

1003 APR 24 PM 1:55
LAW OFFICES OF
MORGAN, LEWIS & BOCKIUS LLP
COURT
CLERK'S OFFICE

6 ANN A. BYUN (SBN 161593)
7 MORGAN, LEWIS & BOCKIUS LLP
1701 Market Street
Philadelphia, PA 19103
8 Tel: (215) 963-5000
Fax: (215) 963-5299

9 Attorneys for Plaintiff and
10 Counterclaim Defendant
LG. PHILIPS LCD CO., LTD.

11

12 UNITED STATES DISTRICT COURT
13 CENTRAL DISTRICT OF CALIFORNIA

14
15 LG. PHILIPS LCD CO., LTD.,

Case No. CV 03-2866 DDP

16 Plaintiff,

COMPLAINT FOR PATENT
INFRINGEMENT

17 vs.

[DEMAND FOR JURY TRIAL]

18 JEAN COMPANY LTD.,

19 Defendant.

(RZ)

20
21 Plaintiff LG. Philips LCD Co., Ltd. ("LPL"), by its
22 undersigned attorneys, complains of Defendant and alleges as
23 follows:

24 JURISDICTION AND VENUE

25 1. This is an action for patent infringement, arising
26 under the patent laws of the United States, Title 35 of the
27 United States Code, § 1, et seq. This court has jurisdiction

ENTERED ON IOMS

APR 24 2003

CV

1 over the subject matter of this action pursuant to Title 28 of
2 the United States Code, §§ 1331 and 1338(a).

3 2. Venue is proper in this judicial district under Title
4 28 of the United States Code, §§ 1391(b), 1391(c), 1391(d) and
5 1400(b).

6 PARTIES

7 3. Plaintiff LPL is a corporation organized under the laws
8 of the Republic of Korea having a place of business located in
9 Seoul, Korea.

10 4. LPL is informed and believes, and on that basis
11 alleges, that Defendant Jean Company Ltd. ("Jean") is a
12 corporation existing under the laws Taiwan and maintains global
13 service centers throughout the world, including the United States
14 and this judicial district. LPL is informed and believes, and on
15 that basis alleges, that one of Jean's global service centers is
16 JAS Electronics, Inc., located at 1215 Bixby Drive, City of
17 Industry, California.

18 LPL'S PATENTS-IN-SUIT

19 5. LPL is the owner by assignment of all rights, title and
20 interest in and to United States Patent No. 4,624,737 ("the '737
21 patent"), issued on November 25, 1986, entitled "Process for
22 Producing Thin-Film Transistor."

23 6. LPL is the owner by assignment of all rights, title and
24 interest in and to United States Patent No. 5,825,449 ("the '449
25 patent"), issued on October 20, 1998, entitled "Liquid Crystal
26 Display Device and Method of Manufacturing the Same."

27 7. LPL is the owner by assignment of all rights, title and
28 interest in and to United States Patent No. 6,373,537 ("the '537

1 patent"), issued on April 16, 2002, entitled "Computer Having
2 Liquid Crystal Display Between Frames Attached at the Edges."

3 8. LPL is the owner by assignment of all rights, title and
4 interest in and to United States Patent No. 6,002,457 ("the '457
5 patent"), issued on December 14, 1999, entitled "Computer Having
6 Liquid Crystal Display."

7 9. LPL is the owner by assignment of all rights, title and
8 interest in and to United States Patent No. 5,926,237 ("the '237
9 patent"), issued on July 20, 1999, entitled "Computer Having
10 Liquid Crystal Display."

11 **DEFENDANT'S INFRINGEMENT OF LPL'S PATENTS**

12 10. LPL is informed and believes, and on that basis
13 alleges, that Chunghwa Picture Tubes, Ltd. ("CPT") manufactures
14 liquid crystal display ("LCD") panels that infringe LPL's patents
15 as set forth in a related case No. CV-02-6775 CBM (JTLx). LPL is
16 informed and believes, and on that basis alleges, that Defendant
17 Jean incorporates those LCD panels into computer products, such
18 as monitors. LPL is informed and believes, and on that basis
19 alleges, that Jean imports into and sells in the United States,
20 including within this judicial district, computer products that
21 include such CPT LCD panels.

22 11. LPL is informed and believes, and on that basis
23 alleges, that Jean and CPT are working in concert to import and
24 sell in the United States infringing LCD panels (and/or products
25 with infringing LCD panels incorporated therein).

26

27

28

FIRST CLAIM FOR RELIEF

(INFRINGEMENT OF THE '737 PATENT)

3 12. LPL incorporates by this reference paragraphs 1 through
4 11 above, as though fully set forth herein.

5 13. Jean has infringed and is infringing the '737 patent by
6 making, using, selling, offering for sale and/or importing into
7 the United States products manufactured by a process covered by
8 one or more claims of the '737 patent, by actively inducing and
9 encouraging others to do so and/or by contributing to such
10 infringement.

11 14. Jean has infringed and is infringing the '737 patent
12 with knowledge of LPL's patent rights and without a reasonable
13 basis for believing that its conduct is lawful. Jean's acts of
14 infringement have been willful, deliberate, and in reckless
15 disregard of LPL's patent rights, and will continue unless
16 enjoined by this Court.

17 15. By reason of the foregoing, LPL has been damaged and
18 will continue to sustain damages in an amount to be determined at
19 trial and has suffered and will continue to suffer irreparable
20 loss and injury.

SECOND CLAIM FOR RELIEF

(INFRINGEMENT OF THE '449 PATENT)

23 16. LPL incorporates by this reference paragraphs 1 through
24 11 above, as though fully set forth herein.

25 17. Jean has infringed and is infringing the '449 patent by
26 making, using, selling, offering for sale and/or importing into
27 the United States products covered by one or more claims of the
28 '449 patent, by making, using, selling, offering for sale and/or

1 importing into the U.S. products manufactured by a process
2 covered by one or more claims of the '449 patent, by actively
3 inducing and encouraging others to do so and/or by contributing
4 to such infringement.

5 18. Jean has infringed and is infringing the '449 patent
6 with knowledge of LPL's patent rights and without a reasonable
7 basis for believing that its conduct is lawful. Jean's acts of
8 infringement have been willful, deliberate, and in reckless
9 disregard of LPL's patent rights, and will continue unless
10 enjoined by this Court.

11 19. By reason of the foregoing, LPL has been damaged and
12 will continue to sustain damages in an amount to be determined at
13 trial and has suffered and will continue to suffer irreparable
14 loss and injury.

THIRD CLAIM FOR RELIEF

(INFRINGEMENT OF THE '537 PATENT)

17 20. LPL incorporates by this reference paragraphs 1 through
18 11 above, as though fully set forth herein.

19 21. Jean has infringed and is infringing the '537 patent by
20 making, using, selling, offering for sale and/or importing into
21 the United States products covered by one or more claims of the
22 '537 patent, by actively inducing and encouraging others to do so
23 and/or by contributing to such infringement.

24 22. Jean has infringed and is infringing the '537 patent
25 with knowledge of LPL's patent rights and without a reasonable
26 basis for believing that its conduct is lawful. Jean's acts of
27 infringement have been willful, deliberate, and in reckless

1 disregard of LPL's patent rights, and will continue unless
2 enjoined by this Court.

3 23. By reason of the foregoing, LPL has been damaged and
4 will continue to sustain damages in an amount to be determined at
5 trial and has suffered and will continue to suffer irreparable
6 loss and injury.

7 FOURTH CLAIM FOR RELIEF

8 (**INFRINGEMENT OF THE '457 PATENT**)

9 24. LPL incorporates by this reference paragraphs 1 through
10 11 above, as though fully set forth herein.

11 25. Jean has infringed and is infringing the '457 patent by
12 making, using, selling, offering for sale and/or importing into
13 the United States products covered by one or more claims of the
14 '457 patent, by actively inducing and encouraging others to do so
15 and/or by contributing to such infringement.

16 26. Jean has infringed and is infringing the '457 patent
17 with knowledge of LPL's patent rights and without a reasonable
18 basis for believing that its conduct is lawful. Jean's acts of
19 infringement have been willful, deliberate, and in reckless
20 disregard of LPL's patent rights, and will continue unless
21 enjoined by this Court.

22 27. By reason of the foregoing, LPL has been damaged and
23 will continue to sustain damages in an amount to be determined at
24 trial and has suffered and will continue to suffer irreparable
25 loss and injury.

26

27

28

FIFTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '237 PATENT)

3 28. LPL incorporates by this reference paragraphs 1 through
4 11 above, as though fully set forth herein.

5 29. Jean has infringed and is infringing the '237 patent by
6 making, using, selling, offering for sale and/or importing into
7 the U.S. products manufactured by a process covered by one or
8 more claims of the '237 patent, by actively inducing and
9 encouraging others to do so and/or by contributing to such
10 infringement.

11 30. Jean has infringed and is infringing the '237 patent
12 with knowledge of LPL's patent rights and without a reasonable
13 basis for believing that its conduct is lawful. Jean's acts of
14 infringement have been willful, deliberate, and in reckless
15 disregard of LPL's patent rights, and will continue unless
16 enjoined by this Court.

17 31. By reason of the foregoing, LPL has been damaged and
18 will continue to sustain damages in an amount to be determined at
19 trial and has suffered and will continue to suffer irreparable
20 loss and injury.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff LPL prays for relief against Defendant Jean as follows:

24 1. For a judgment that Jean has infringed LPL's United
25 States Patent Nos. 4,624,737, 5,825,449, 6,373,537, 6,002,457,
26 and 5,926,237;

27 2. For preliminary and permanent injunctive relief against
28 Jean's further infringement of LPL's United States patents;

1 3. For an award of damages for Jean's infringement of
2 LPL's patents, together with interest, costs and disbursements as
3 fixed by this Court under Title 35 of the United States Code §
4 284;

5 4. For a determination that Jean's infringement is
6 willful, and an award of trebled damages under Title 35 of the
7 United States Code § 284, for infringement of LPL's patents;

8 5. For a determination that this is an exceptional case
9 within the meaning of Title 35 of the United States Code § 285
10 and an assessment of LPL's reasonable attorneys' fees; and

11 6. For such other and further relief as the Court deems
12 just and proper.

13 Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

14 By _____
15

Jeffrey N. Brown
Attorneys for Plaintiff
LG.PHILIPS LCD CO., LTD.

18
19
20
21
22
23
24
25
26
27
28

JURY TRIAL DEMAND

Plaintiff LG.Philips LCD Co., Ltd. hereby demands a trial by jury on all issues properly triable by jury.

Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

By

Jeffrey N. Brown
Attorneys for Plaintiff
LG. PHILIPS LCD CO., LTD.

EXHIBIT C

1 JEFFREY N. BROWN (SBN 105520)
2 WILFREDO HERNANDEZ, JR. (SBN 200917)
3 MORGAN, LEWIS & BOCKIUS LLP
4 300 South Grand Avenue
5 Twenty-Second Floor
6 Los Angeles, CA 90071-3132
7 Tel: (213) 612-2500
8 Fax: (213) 612-2501

9 ANN A. BYUN (SBN 161593)
10 MORGAN, LEWIS & BOCKIUS LLP
11 1701 Market Street
12 Philadelphia, PA 19103
13 Tel: (215) 963-5000
14 Fax: (215) 963-5299

15 Attorneys for Plaintiff and
16 Counterclaim Defendant
17 LG. PHILIPS LCD CO., LTD.

18

19 UNITED STATES DISTRICT COURT

20 CENTRAL DISTRICT OF CALIFORNIA

21

ON 03-2884 WJR (MANX)

22 1/5 LG. PHILIPS LCD CO., LTD.,

Case No.

23 Plaintiff,

COMPLAINT FOR PATENT
INFRINGEMENT

24 vs.

[DEMAND FOR JURY TRIAL]

25 S.20 18 LITE-ON TECHNOLOGY
19 CORPORATION and LITE-ON
20 TECHNOLOGY INTERNATIONAL
21 INCORPORATED,

Defendants.

22 Plaintiff LG.Philips LCD Co., Ltd. ("LPL"), by its
23 undersigned attorneys, complains of Defendants and alleges as
24 follows:

APR 25 2003

25 JURISDICTION AND VENUE

26 1. This is an action for patent infringement, arising
27 under the patent laws of the United States, Title 35 of the
28 United States Code, § 1, et seq. This court has jurisdiction

1 over the subject matter of this action pursuant to Title 28 of
2 the United States Code, §§ 1331 and 1338(a).

3 2. Venue is proper in this judicial district under Title
4 28 of the United States Code, §§ 1391(b), 1391(c), 1391(d) and
5 1400(b).

6 PARTIES

7 3. Plaintiff LPL is a corporation organized under the laws
8 of the Republic of Korea having a place of business located in
9 Seoul, Korea.

10 4. Plaintiff LPL is informed and believes, and on that basis
11 alleges that Defendant Lite-On Technology International
12 Incorporated ("Lite-On USA") is a corporation existing under the
13 laws of the State of California having a place of business
14 located at 6262 Katella Avenue, Cypress, California. LPL is
15 informed and believes, and on that basis alleges, that Lite-On
16 USA is responsible for sales of Lite-On products in the United
17 States, including this district.

18 5. LPL is informed and believes, and on that basis
19 alleges, that Defendant Lite-On Technology Corporation ("Lite-
20 On") is a corporation existing under the laws of Taiwan and is
21 the parent company of Lite-On USA.

22 LPL'S PATENTS-IN-SUIT

23 6. LPL is the owner by assignment of all rights, title and
24 interest in and to United States Patent No. 4,624,737 ("the '737
25 patent"), issued on November 25, 1986, entitled "Process for
26 Producing Thin-Film Transistor."

27 7. LPL is the owner by assignment of all rights, title and
28 interest in and to United States Patent No. 5,825,449 ("the '449

1 patent"), issued on October 20, 1998, entitled "Liquid Crystal
2 Display Device and Method of Manufacturing the Same."

3 8. LPL is the owner by assignment of all rights, title and
4 interest in and to United States Patent No. 6,373,537 ("the '537
5 patent"), issued on April 16, 2002, entitled "Computer Having
6 Liquid Crystal Display Between Frames Attached at the Edges."

7 9. LPL is the owner by assignment of all rights, title and
8 interest in and to United States Patent No. 6,002,457 ("the '457
9 patent"), issued on December 14, 1999, entitled "Computer Having
10 Liquid Crystal Display."

11 10. LPL is the owner by assignment of all rights, title and
12 interest in and to United States Patent No. 5,926,237 ("the '237
13 patent"), issued on July 20, 1999, entitled "Computer Having
14 Liquid Crystal Display."

15 **DEFENDANTS' INFRINGEMENT OF LPL'S PATENTS**

16 11. LPL is informed and believes, and on that basis
17 alleges, that Chunghwa Picture Tubes, Ltd. ("CPT") manufactures
18 liquid crystal display ("LCD") panels that infringe LPL's patents
19 as set forth in a related case No. CV-02-6775 CBM (JTLx). LPL is
20 informed and believes, and on that basis alleges, that at least
21 Lite-On incorporates those LCD panels into computer products,
22 such as monitors. LPL is informed and believes, and on that
23 basis alleges, that at least Lite-On USA, Lite-On's sales and
24 distribution subsidiary, imports into and sells in the United
25 States, including within this judicial district, computer
26 products that include such CPT LCD panels.

27 12. LPL is informed and believes, and on that basis
28 alleges, that Lite-On, Lite-On USA and CPT are working in concert

1 to import and sell in the United States infringing LCD panels
2 (and/or products with infringing LCD panels incorporated
3 therein).

4 **FIRST CLAIM FOR RELIEF**

5 **(INFRINGEMENT OF THE '737 PATENT)**

6 13. LPL incorporates by this reference paragraphs 1 through
7 12 above, as though fully set forth herein.

8 14. Defendants have infringed and are infringing the '737
9 patent by making, using, selling, offering for sale and/or
10 importing into the United States products manufactured by a
11 process covered by one or more claims of the '737 patent, by
12 actively inducing and encouraging others to do so and/or by
13 contributing to such infringement.

14 15. Defendants have infringed and are infringing the '737
15 patent with knowledge of LPL's patent rights and without a
16 reasonable basis for believing that Defendants' conduct is
17 lawful. Defendants' acts of infringement have been willful,
18 deliberate, and in reckless disregard of LPL's patent rights, and
19 will continue unless enjoined by this Court.

20 16. By reason of the foregoing, LPL has been damaged and
21 will continue to sustain damages in an amount to be determined at
22 trial and has suffered and will continue to suffer irreparable
23 loss and injury.

24 **SECOND CLAIM FOR RELIEF**

25 **(INFRINGEMENT OF THE '449 PATENT)**

26 17. LPL incorporates by this reference paragraphs 1 through
27 12 above, as though fully set forth herein.

28

1 18. Defendants have infringed and are infringing the '449
2 patent by making, using, selling, offering for sale and/or
3 importing into the United States products covered by one or more
4 claims of the '449 patent, by making, using, selling, offering
5 for sale and/or importing into the U.S. products manufactured by
6 a process covered by one or more claims of the '449 patent, by
7 actively inducing and encouraging others to do so and/or by
8 contributing to such infringement.

9 19. Defendants have infringed and are infringing the '449
10 patent with knowledge of LPL's patent rights and without a
11 reasonable basis for believing that Defendants' conduct is
12 lawful. Defendants' acts of infringement have been willful,
13 deliberate, and in reckless disregard of LPL's patent rights, and
14 will continue unless enjoined by this Court.

15 20. By reason of the foregoing, LPL has been damaged and
16 will continue to sustain damages in an amount to be determined at
17 trial and has suffered and will continue to suffer irreparable
18 loss and injury.

THIRD CLAIM FOR RELIEF

(INFRINGEMENT OF THE '537 PATENT)

21 21. LPL incorporates by this reference paragraphs 1 through
22 12 above, as though fully set forth herein.

23 22. Defendants have infringed and are infringing the '537
24 patent by making, using, selling, offering for sale and/or
25 importing into the United States products covered by one or more
26 claims of the '537 patent, by actively inducing and encouraging
27 others to do so and/or by contributing to such infringement.

1 23. Defendants have infringed and are infringing the '537
2 patent with knowledge of LPL's patent rights and without a
3 reasonable basis for believing that Defendants' conduct is
4 lawful. Defendants' acts of infringement have been willful,
5 deliberate, and in reckless disregard of LPL's patent rights, and
6 will continue unless enjoined by this Court.

7 24. By reason of the foregoing, LPL has been damaged and
8 will continue to sustain damages in an amount to be determined at
9 trial and has suffered and will continue to suffer irreparable
10 loss and injury.

11 FOURTH CLAIM FOR RELIEF

12 (INFRINGEMENT OF THE '457 PATENT)

13 25. LPL incorporates by this reference paragraphs 1 through
14 12 above, as though fully set forth herein.

15 26. Defendants have infringed and are infringing the '457
16 patent by making, using, selling, offering for sale and/or
17 importing into the United States products covered by one or more
18 claims of the '457 patent, by actively inducing and encouraging
19 others to do so and/or by contributing to such infringement.

20 27. Defendants have infringed and are infringing the '457
21 patent with knowledge of LPL's patent rights and without a
22 reasonable basis for believing that Defendants' conduct is
23 lawful. Defendants' acts of infringement have been willful,
24 deliberate, and in reckless disregard of LPL's patent rights, and
25 will continue unless enjoined by this Court.

26 28. By reason of the foregoing, LPL has been damaged and
27 will continue to sustain damages in an amount to be determined at
28

1 trial and has suffered and will continue to suffer irreparable
2 loss and injury.

3 **FIFTH CLAIM FOR RELIEF**

4 **(INFRINGEMENT OF THE '237 PATENT)**

5 29. LPL incorporates by this reference paragraphs 1 through
6 12 above, as though fully set forth herein.

7 30. Defendants have infringed and are infringing the '237
8 patent by making, using, selling, offering for sale and/or
9 importing into the U.S. products manufactured by a process
10 covered by one or more claims of the '237 patent, by actively
11 inducing and encouraging others to do so and/or by contributing
12 to such infringement.

13 31. Defendants have infringed and are infringing the '237
14 patent with knowledge of LPL's patent rights and without a
15 reasonable basis for believing that Defendants conduct is lawful.
16 Defendants' acts of infringement have been willful, deliberate,
17 and in reckless disregard of LPL's patent rights, and will
18 continue unless enjoined by this Court.

19 32. By reason of the foregoing, LPL has been damaged and
20 will continue to sustain damages in an amount to be determined at
21 trial and has suffered and will continue to suffer irreparable
22 loss and injury.

23 **PRAYER FOR RELIEF**

24 WHEREFORE, Plaintiff LPL prays for relief against Defendants
25 Lite-On and Lite-On USA as follows:

26 1. For a judgment that Defendants have infringed LPL's
27 United States Patent Nos. 4,624,737, 5,825,449, 6,373,537,
28 6,002,457, and 5,926,237;

1 2. For preliminary and permanent injunctive relief against
2 Defendants' further infringement of LPL's United States patents;

3 3. For an award of damages for Defendants' infringement of
4 LPL's patents, together with interest, costs and disbursements as
5 fixed by this Court under Title 35 of the United States Code §
6 284;

7 4. For a determination that Defendants' infringement is
8 willful, and an award of trebled damages under Title 35 of the
9 United States Code § 284, for infringement of LPL's patents;

10 5. For a determination that this is an exceptional case
11 within the meaning of Title 35 of the United States Code § 285
12 and an assessment of LPL's reasonable attorneys' fees; and

13 6. For such other and further relief as the Court deems
14 just and proper.

15 Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

16 By _____
17 Jeffrey N. Brown
18 Attorneys for Plaintiff
19 LG.PHILIPS LCD CO., LTD.

20

21

22

23

24

25

26

27

1-LA/681\$10.1

JURY TRIAL DEMAND

Plaintiff LG.Philips LCD Co., Ltd. hereby demands a trial by jury on all issues properly triable by jury.

Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

By

Jeffrey N. Brown
Attorneys for Plaintiff
LG. PHILIPS LCD CO., LTD.

EXHIBIT D

1 JEFFREY N. BROWN (SBN 105520)
2 WILFREDO HERNANDEZ, JR. (SBN 200917)
3 MORGAN, LEWIS & BOCKIUS LLP
4 300 South Grand Avenue
5 Twenty-Second Floor
6 Los Angeles, CA 90071-3132
7 Tel: (213) 612-2500
8 Fax: (213) 612-2501

9 ANN A. BYUN (SBN 161593)
10 MORGAN, LEWIS & BOCKIUS LLP
11 1701 Market Street
12 Philadelphia, PA 19103
13 Tel: (215) 963-5000
14 Fax: (215) 963-5299

15 Attorneys for Plaintiff and
16 Counterclaim Defendant
17 LG. PHILIPS LCD CO., LTD.

18
19
20 UNITED STATES DISTRICT COURT
21 CENTRAL DISTRICT OF CALIFORNIA

22
23
24
25 LG. PHILIPS LCD CO., LTD.,

26 Case No.

27 03-2885 JFW (SHX)
28 Plaintiff,
vs.
TPV TECHNOLOGY, LTD., and
ENVISION PERIPHERALS, INC.,
Defendants.

COMPLAINT FOR PATENT
INFRINGEMENT

[DEMAND FOR JURY TRIAL]

29 Plaintiff LG.Philips LCD Co., Ltd. ("LPL"), by its
undersigned attorneys, complains of Defendants and alleges as
follows:

30 JURISDICTION AND VENUE

31 1. This is an action for patent infringement, arising
32 under the patent laws of the United States, Title 35 of the
33 United States Code, § 1, et seq. The Court has jurisdiction

34 ENTERED ON ICMS

35 APR 25 2003

36 CV

1 over the subject matter of this action pursuant to Title 28 of
2 the United States Code, §§ 1331 and 1338(a).

3 2. Venue is proper in this judicial district under Title
4 .28 of the United States Code, §§ 1391(b), 1391(c), 1391(d) and
5 1400(b).

PARTIES

7 3. Plaintiff LPL is a corporation organized under the laws
8 of the Republic of Korea having a place of business located in
9 Seoul, Korea.

10 4. Plaintiff LPL is informed and believes, and on that
11 basis alleges that Defendant Envision Peripherals, Inc.

12 ("Envision") is a corporation existing under the laws of the
13 State of California having a place of business located at 47490
14 Seabridge Dr., Fremont, CA 94538.

15 5. LPL is informed and believes, and on that basis
16 alleges, that Defendant TPV Technology, Ltd. ("TPV") is a
17 corporation existing under the laws of Bermuda, having a place of
18 business located in Hong Kong, and is the parent company of
19 Envision.

20 6. LPL is informed and believes, and on that basis
21 alleges, that Envision is responsible for sales of TPV products
22 in the United States, including this district.

LPL'S PATENTS-IN-SUIT

24 7. LPL is the owner by assignment of all rights, title and
25 interest in and to United States Patent No. 4,624,737 ("the '737
26 patent"), issued on November 25, 1986, entitled "Process for
27 Producing Thin-Film Transistor."

1 8. LPL is the owner by assignment of all rights, title and
2 interest in and to United States Patent No. 5,825,449 ("the '449
3 patent"), issued on October 20, 1998, entitled "Liquid Crystal
4 Display Device and Method of Manufacturing the Same."

5 9. LPL is the owner by assignment of all rights, title and
6 interest in and to United States Patent No. 6,373,537 ("the '537
7 patent"), issued on April 16, 2002, entitled "Computer Having
8 Liquid Crystal Display Between Frames Attached at the Edges."

9 10. LPL is the owner by assignment of all rights, title and
10 interest in and to United States Patent No. 6,002,457 ("the '457
11 patent"), issued on December 14, 1999, entitled "Computer Having
12 Liquid Crystal Display."

13 11. LPL is the owner by assignment of all rights, title and
14 interest in and to United States Patent No. 5,926,237 ("the '237
15 patent"), issued on July 20, 1999, entitled "Computer Having
16 Liquid Crystal Display."

17 DEFENDANTS' INFRINGEMENT OF LPL'S PATENTS

18 12. LPL is informed and believes, and on that basis
19 alleges, that Chunghwa Picture Tubes, Ltd. ("CPT") manufactures
20 liquid crystal display ("LCD") panels that infringe LPL's patents
21 as set forth in a related case No. CV-02-6775 CBM (JTLx). LPL is
22 informed and believes, and on that basis alleges, that at least
23 TPV incorporates those LCD panels into computer products, such as
24 monitors. LPL is informed and believes, and on that basis
25 alleges, that at least Envision, TPV's sales and distribution
26 subsidiary, imports into and sells in the United States,
27 including within this judicial district, computer products that

1 include such CPT LCD panels, including monitors sold under the
2 brand name AOC.

3 13. LPL is informed and believes, and on that basis
4 alleges, that TPV, Envision and CPT are working in concert to
5 import and sell in the United States infringing LCD panels
6 (and/or products with infringing LCD panels incorporated
7 therein).

8 FIRST CLAIM FOR RELIEF

9 (**INFRINGEMENT OF THE '737 PATENT**)

10 14. LPL incorporates by this reference paragraphs 1 through
11 13 above, as though fully set forth herein.

12 15. Defendants have infringed and are infringing the '737
13 patent by making, using, selling, offering for sale and/or
14 importing into the United States products manufactured by a
15 process covered by one or more claims of the '737 patent, by
16 actively inducing and encouraging others to do so and/or by
17 contributing to such infringement.

18 16. Defendants have infringed and are infringing the '737
19 patent with knowledge of LPL's patent rights and without a
20 reasonable basis for believing that its conduct is lawful.
21 Defendants' acts of infringement have been willful, deliberate,
22 and in reckless disregard of LPL's patent rights, and will
23 continue unless enjoined by this Court.

24 17. By reason of the foregoing, LPL has been damaged and
25 will continue to sustain damages in an amount to be determined at
26 trial and has suffered and will continue to suffer irreparable
27 loss and injury.

28

SECOND CLAIM FOR RELIEF

(INFRINGEMENT OF THE '449 PATENT)

3 18. LPL incorporates by this reference paragraphs 1 through
4 .13 above, as though fully set forth herein.

5 19. Defendants have infringed and are infringing the '449
6 patent by making, using, selling, offering for sale and/or
7 importing into the United States products covered by one or more
8 claims of the '449 patent, by making, using, selling, offering
9 for sale and/or importing into the U.S. products manufactured by
10 a process covered by one or more claims of the '449 patent, by
11 actively inducing and encouraging others to do so and/or by
12 contributing to such infringement.

13 20. Defendants have infringed and are infringing the '449
14 patent with knowledge of LPL's patent rights and without a
15 reasonable basis for believing that its conduct is lawful.
16 Defendants' acts of infringement have been willful, deliberate,
17 and in reckless disregard of LPL's patent rights, and will
18 continue unless enjoined by this Court.

19 21. By reason of the foregoing, LPL has been damaged and
20 will continue to sustain damages in an amount to be determined at
21 trial and has suffered and will continue to suffer irreparable
22 loss and injury.

THIRD CLAIM FOR RELIEF

(INFRINGEMENT OF THE '537 PATENT)

25 22. LPL incorporates by this reference paragraphs 1 through
26 13 above, as though fully set forth herein.

27 23. Defendants have infringed and are infringing the '537
28 patent by making, using, selling, offering for sale and/or

1 importing into the United States products covered by one or more
2 claims of the '537 patent, by actively inducing and encouraging
3 others to do so and/or by contributing to such infringement.

4 . 24. Defendants have infringed and are infringing the '537
5 patent with knowledge of LPL's patent rights and without a
6 reasonable basis for believing that its conduct is lawful.
7 Defendants' acts of infringement have been willful, deliberate,
8 and in reckless disregard of LPL's patent rights, and will
9 continue unless enjoined by this Court.

10 25. By reason of the foregoing, LPL has been damaged and
11 will continue to sustain damages in an amount to be determined at
12 trial and has suffered and will continue to suffer irreparable
13 loss and injury.

14 **FOURTH CLAIM FOR RELIEF**

15 **(INFRINGEMENT OF THE '457 PATENT)**

16 26. LPL incorporates by this reference paragraphs 1 through
17 13 above, as though fully set forth herein.

18 27. Defendants have infringed and are infringing the '457
19 patent by making, using, selling, offering for sale and/or
20 importing into the United States products covered by one or more
21 claims of the '457 patent, by actively inducing and encouraging
22 others to do so and/or by contributing to such infringement.

23 28. Defendants have infringed and are infringing the '457
24 patent with knowledge of LPL's patent rights and without a
25 reasonable basis for believing that its conduct is lawful.
26 Defendants' acts of infringement have been willful, deliberate,
27 and in reckless disregard of LPL's patent rights, and will
28 continue unless enjoined by this Court.

1 29. By reason of the foregoing, LPL has been damaged and
2 will continue to sustain damages in an amount to be determined at
3 trial and has suffered and will continue to suffer irreparable
4 loss and injury.

FIFTH CLAIM FOR RELIEF

(INFRINGEMENT OF THE '237 PATENT)

7 30. LPL incorporates by this reference paragraphs 1 through
8 13 above, as though fully set forth herein.

9 31. Defendants have infringed and are infringing the '237
10 patent by making, using, selling, offering for sale and/or
11 importing into the U.S. products manufactured by a process
12 covered by one or more claims of the '237 patent, by actively
13 inducing and encouraging others to do so and/or by contributing
14 to such infringement.

15 32. Defendants have infringed and are infringing the '237
16 patent with knowledge of LPL's patent rights and without a
17 reasonable basis for believing that its conduct is lawful.
18 Defendants' acts of infringement have been willful, deliberate,
19 and in reckless disregard of LPL's patent rights, and will
20 continue unless enjoined by this Court.

21 33. By reason of the foregoing, LPL has been damaged and
22 will continue to sustain damages in an amount to be determined at
23 trial and has suffered and will continue to suffer irreparable
24 loss and injury.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff LPL prays for relief against Defendants
Envision and TPV as follows:

1 1. For a judgment that Defendants have infringed LPL's
2 United States Patent Nos. 4,624,737, 5,825,449, 6,373,537,
3 6,002,457, and 5,926,237;

4 2. For preliminary and permanent injunctive relief against
5 Defendants' further infringement of LPL's United States patents;

6 3. For an award of damages for Defendants' infringement of
7 LPL's patents, together with interest, costs and disbursements as
8 fixed by this Court under Title 35 of the United States Code §
9 284;

10 4. For a determination that Defendants' infringement is
11 willful, and an award of trebled damages under Title 35 of the
12 United States Code § 284, for infringement of LPL's patents;

13 5. For a determination that this is an exceptional case
14 within the meaning of Title 35 of the United States Code § 285
15 and an assessment of LPL's reasonable attorneys' fees; and

16 6. For such other and further relief as the Court deems
17 just and proper.

18 Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

19 By _____
20 _____
21 Jeffrey N. Brown
22 Attorneys for Plaintiff
23 LG PHILIPS LCD CO., LTD.
24
25
26
27
28

JURY TRIAL DEMAND

Plaintiff LG.Philips LCD Co., Ltd. hereby demands a trial by
jury on all issues properly triable by jury.

5 Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

BY

Jeffrey N. Brown
Attorneys for Plaintiff
LG.PHILLIPS LCD CO., LTD.

EXHIBIT E

Boise-195984.1 0000000-00001

Case 2:03-cv-02886-CM-JTL Document 1 Filed 04/22/2003 Page 1 of 9

1 JEFFREY N. BROWN (SBN 105520)
2 WILFREDO HERNANDEZ, JR. (SBN 200917)
3 MORGAN, LEWIS & BOCKIUS LLP
4 300 South Grand Avenue
5 Twenty-Second Floor
6 Los Angeles, CA 90071-3132
7 Tel: (213) 612-2500
8 Fax: (213) 612-2501

9 ANN A. BYUN (SBN 161593)
10 MORGAN, LEWIS & BOCKIUS LLP
11 1701 Market Street
12 Philadelphia, PA 19103
13 Tel: (215) 963-5000
14 Fax: (215) 963-5299

15 Attorneys for Plaintiff and
16 Counterclaim Defendant
17 LG. PHILIPS LCD CO., LTD.

18

19 UNITED STATES DISTRICT COURT

20 CENTRAL DISTRICT OF CALIFORNIA

21 LG. PHILIPS LCD CO., LTD.,

22 Plaintiff,

23 vs.

24 VIEWSONIC CORPORATION,

25 Defendant.

ON 03-2886 SW PLAX

Case No.

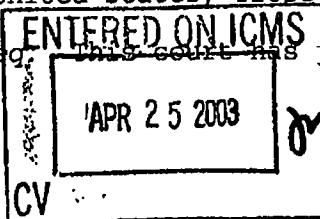
COMPLAINT FOR PATENT
INFRINGEMENT

[DEMAND FOR JURY TRIAL]

26 Plaintiff LG.Philips LCD Co., Ltd. ("LPL"), by its
27 undersigned attorneys, complains of Defendant and alleges as
28 follows:

JURISDICTION AND VENUE

29 1. This is an action for patent infringement, arising
30 under the patent laws of the United States, Title 35 of the
31 United States Code, § 1, et seq. This court has jurisdiction



Case 2:03-cv-02886-CM-JTL Document 1 Filed 04/22/2003 Page 2 of 9

1 over the subject matter of this action pursuant to Title 28 of
2 the United States Code, §§ 1331 and 1338(a).

3 2. Venue is proper in this judicial district under Title
4 28 of the United States Code, §§ 1391(b), 1391(c), 1391(d) and
5 1400(b).

6 PARTIES

7 3. Plaintiff LPL is a corporation organized under the laws
8 of the Republic of Korea having a place of business located in
9 Seoul, Korea.

10 4. Plaintiff LPL is informed and believes, and on that
11 basis alleges that Defendant ViewSonic Corporation ("ViewSonic")
12 is a corporation existing under the laws of the State of Delaware
13 having a place of business located at 381 Brea Canyon Road,
14 Walnut, CA 91789.

15 LPL'S PATENTS-IN-SUIT

16 5. LPL is the owner by assignment of all rights, title and
17 interest in and to United States Patent No. 4,624,737 ("the '737
18 patent"), issued on November 25, 1986, entitled "Process for
19 Producing Thin-Film Transistor."

20 6. LPL is the owner by assignment of all rights, title and
21 interest in and to United States Patent No. 5,825,449 ("the '449
22 patent"), issued on October 20, 1998, entitled "Liquid Crystal
23 Display Device and Method of Manufacturing the Same."

24 7. LPL is the owner by assignment of all rights, title and
25 interest in and to United States Patent No. 6,373,537 ("the '537
26 patent"), issued on April 16, 2002, entitled "Computer Having
27 Liquid Crystal Display Between Frames Attached at the Edges."

Case 2:03-cv-02886-CBM-JTL Document 1 Filed 04/22/2003 Page 3 of 9

1 8. LPL is the owner by assignment of all rights, title and
2 interest in and to United States Patent No. 6,002,457 ("the '457
3 patent"), issued on December 14, 1999, entitled "Computer Having
4 Liquid Crystal Display."

5 9. LPL is the owner by assignment of all rights, title and
6 interest in and to United States Patent No. 5,926,237 ("the '237
7 patent"), issued on July 20, 1999, entitled "Computer Having
8 Liquid Crystal Display."

9 DEFENDANT'S INFRINGEMENT OF LPL'S PATENTS

10 10. LPL is informed and believes, and on that basis
11 alleges, that Chunghwa Picture Tubes, Ltd. ("CPT") manufactures
12 liquid crystal display ("LCD") panels that infringe LPL's patents
13 as set forth in a related case No. CV-02-6775 CBM (JTLx). LPL is
14 informed and believes, and on that basis alleges, that ViewSonic
15 imports into and/or sells in the United States, including within
16 this judicial district, computer products that include such CPT
17 LCD panels.

18 11. LPL is informed and believes, and on that basis
19 alleges, that ViewSonic and CPT are working in concert to import
20 and sell in the United States infringing LCD panels (and/or
21 products with infringing LCD panels incorporated therein).

22 FIRST CLAIM FOR RELIEF

23 (INFRINGEMENT OF THE '737 PATENT)

24 12. LPL incorporates by this reference paragraphs 1 through
25 11 above, as though fully set forth herein.

26 13. Defendant has infringed and is infringing the '737
27 patent by making, using, selling, offering for sale and/or
28 importing into the United States products manufactured by a

' Case 2:03-cv-02886-M-JTL Document 1 Filed 04/22/2003 Page 4 of 9

1 process covered by one or more claims of the '737 patent, by
2 actively inducing and encouraging others to do so and/or by
3 contributing to such infringement.

4 14. Defendant has infringed and is infringing the '737
5 patent with knowledge of LPL's patent rights and without a
6 reasonable basis for believing that its conduct is lawful.
7 Defendant's acts of infringement have been willful, deliberate,
8 and in reckless disregard of LPL's patent rights, and will
9 continue unless enjoined by this Court.

10 15. By reason of the foregoing, LPL has been damaged and
11 will continue to sustain damages in an amount to be determined at
12 trial and has suffered and will continue to suffer irreparable
13 loss and injury.

14 SECOND CLAIM FOR RELIEF

15 (**INFRINGEMENT OF THE '449 PATENT**)

16 16. LPL incorporates by this reference paragraphs 1 through
17 11 above, as though fully set forth herein.

18 17. Defendant has infringed and is infringing the '449
19 patent by making, using, selling, offering for sale and/or
20 importing into the United States products covered by one or more
21 claims of the '449 patent, by making, using, selling, offering
22 for sale and/or importing into the U.S. products manufactured by
23 a process covered by one or more claims of the '449 patent, by
24 actively inducing and encouraging others to do so and/or by
25 contributing to such infringement.

26 18. Defendant has infringed and is infringing the '449
27 patent with knowledge of LPL's patent rights and without a
28 reasonable basis for believing that its conduct is lawful.

' Case 2:03-cv-02886-CM-JTL Document 1 Filed 04/22/2003 Page 5 of 9

1 Defendant's acts of infringement have been willful, deliberate,
2 and in reckless disregard of LPL's patent rights, and will
3 continue unless enjoined by this Court.

4 19. By reason of the foregoing, LPL has been damaged and
5 will continue to sustain damages in an amount to be determined at
6 trial and has suffered and will continue to suffer irreparable
7 loss and injury.

8 **THIRD CLAIM FOR RELIEF**

9 **(INFRINGEMENT OF THE '537 PATENT)**

10 20. LPL incorporates by this reference paragraphs 1 through
11 above, as though fully set forth herein.

12 21. Defendant has infringed and is infringing the '537
13 patent by making, using, selling, offering for sale and/or
14 importing into the United States products covered by one or more
15 claims of the '537 patent, by actively inducing and encouraging
16 others to do so and/or by contributing to such infringement.

17 22. Defendant has infringed and is infringing the '537
18 patent with knowledge of LPL's patent rights and without a
19 reasonable basis for believing that its conduct is lawful.
20 Defendant's acts of infringement have been willful, deliberate,
21 and in reckless disregard of LPL's patent rights, and will
22 continue unless enjoined by this Court.

23 23. By reason of the foregoing, LPL has been damaged and
24 will continue to sustain damages in an amount to be determined at
25 trial and has suffered and will continue to suffer irreparable
26 loss and injury.

27
28

Case 2:03-cv-02886-CM-JTL Document 1 Filed 04/22/2003 Page 6 of 9

1 FOURTH CLAIM FOR RELIEF

2 (INFRINGEMENT OF THE '457 PATENT)

3 24. LPL incorporates by this reference paragraphs 1 through
4 above, as though fully set forth herein.

5 25. Defendant has infringed and is infringing the '457
6 patent by making, using, selling, offering for sale and/or
7 importing into the United States products covered by one or more
8 claims of the '457 patent, by actively inducing and encouraging
9 others to do so and/or by contributing to such infringement.

10 26. Defendant has infringed and is infringing the '457
11 patent with knowledge of LPL's patent rights and without a
12 reasonable basis for believing that its conduct is lawful.
13 Defendant's acts of infringement have been willful, deliberate,
14 and in reckless disregard of LPL's patent rights, and will
15 continue unless enjoined by this Court.

16 27. By reason of the foregoing, LPL has been damaged and
17 will continue to sustain damages in an amount to be determined at
18 trial and has suffered and will continue to suffer irreparable
19 loss and injury.

20 FIFTH CLAIM FOR RELIEF

21 (INFRINGEMENT OF THE '237 PATENT)

22 28. LPL incorporates by this reference paragraphs 1 through
23 above, as though fully set forth herein.

24 29. Defendant has infringed and is infringing the '237
25 patent by making, using, selling, offering for sale and/or
26 importing into the U.S. products manufactured by a process
27 covered by one or more claims of the '237 patent, by actively

Case 2:03-cv-02886-M-JTL Document 1 Filed 04/01/03 Page 7 of 9

1 inducing and encouraging others to do so and/or by contributing
2 to such infringement.

3 30. Defendant has infringed and is infringing the '237
4 patent with knowledge of LPL's patent rights and without a
5 reasonable basis for believing that its conduct is lawful.
6 Defendant's acts of infringement have been willful, deliberate,
7 and in reckless disregard of LPL's patent rights, and will
8 continue unless enjoined by this Court.

9 31. By reason of the foregoing, LPL has been damaged and
10 will continue to sustain damages in an amount to be determined at
11 trial and has suffered and will continue to suffer irreparable
12 loss and injury.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff LPL prays for relief against Defendant ViewSonic as follows:

16 1. For a judgment that Defendant has infringed LPL's
17 United States Patent Nos. 4,624,737, 5,825,449, 6,373,537,
18 6,002,457, and 5,926,237;

19 2. For preliminary and permanent injunctive relief against
20 Defendant's further infringement of LPL's United States patents;

21 3. For an award of damages for Defendant's infringement of
22 LPL's patents, together with interest, costs and disbursements as
23 fixed by this Court under Title 35 of the United States Code §
24 284;

25 4. For a determination that Defendant's infringement is
26 willful, and an award of trebled damages under Title 35 of the
27 United States Code § 284, for infringement of LPL's patents;

Case 2:03-cv-02886-M-JTL Document 1 Filed 04/22/2003 Page 8 of 9

1 5. For a determination that this is an exceptional case
2 within the meaning of Title 35 of the United States Code § 285
3 and an assessment of LPL's reasonable attorneys' fees; and

4 6. For such other and further relief as the Court deems
5 just and proper.

6 Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

7 By _____
8 Jeffrey N. Brown
9 Attorneys for Plaintiff
10 LG PHILIPS LCD CO., LTD.
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28

Case 2:03-cv-02886-CM-JTL Document 1 Filed 04/22/03 Page 9 of 9

JURY TRIAL DEMAND

Plaintiff LG.Philips LCD Co., Ltd. hereby demands a trial by jury on all issues properly triable by jury.

Dated: April 24, 2003

MORGAN, LEWIS & BOCKIUS LLP

By _____
Jeffrey N. Brown
Attorneys for Plaintiff
LG. PHILIPS LCD CO., LTD.

EXHIBIT F

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA

CIVIL MINUTES--GENERAL

Case No.: CV 02-6775 CBM
CV 03-2886 CBM ✓
CV 03-2866 CBM
CV 03-2884 CBM
CV 03-2885 CBM

Date: August 19, 2003

Title: LG. Phillips LCD Co., Ltd. v. Tatung Co. of America, et. al.;
LG. Phillips v. Viewsonic Corp.;
LG. Phillips v. Jean Co.;
LG. Phillips v. Lite-On Technology;
LG. Phillips v. TPV Technology, Ltd., et. al.

Priority
Send
Enter
Closed
JS-5/JS-6
JS-2/JS-3
Scan Only

DOCKET ENTRY

ORDER Consolidating Cases for Pre-Trial Purposes and Scheduling Claim Construction Briefing

PRESENT:

Hon. CONSUELO B. MARSHALL, CHIEF JUDGE

JOSEPH LEVARIO none present
Deputy Clerk Court Reporter

ATTORNEYS PRESENT FOR PLAINTIFFS:

none present

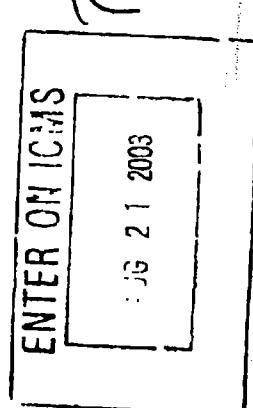
ATTORNEYS PRESENT FOR DEFENDANTS:

none present

PROCEEDINGS:

The parties in the above-entitled cases appeared before the Court for a status conference on August 4, 2003. Pursuant to the Court's request, the parties met and conferred and on August 15, 2003, submitted a Joint Report concerning consolidation, claim construction, and Request to Stay Proceedings as to Defendant Viewsonic.

The Court hereby CONSOLIDATES the above-entitled cases for all pre-trial purposes, including claim construction, but not including the final pre-trial conference. The Court DENIES WITHOUT PREJUDICE Viewsonic's request to stay the proceedings. Viewsonic may renew this request following claim construction in these consolidated matters.



22

The Court ORDERS the following schedule for claim construction in these consolidated cases:

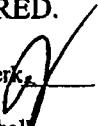
Meet and confer concerning claim construction issues:	September 5, 2003
Revised Joint Claim Construction Statement Filed and Served:	September 12, 2003
Plaintiff's Claim Construction Brief:	October 6, 2003
Defendants' Claim Construction Brief:	October 21, 2003
Plaintiff's Claim Construction Reply Brief:	October 28, 2003
Claim Construction Hearing:	November 17, 2003, 2:00 p.m.

The revised Joint Claim Construction Statement should also identify any terms that the Court should consider equivalent.

The parties' claim construction briefs shall comply with Local Rule 11-6 regarding page limits for memoranda of points and authorities. If the parties require excess pages, the parties may apply to the Court, with good cause shown, for relief from Local Rule 11-6.

If any party intends to make use of outside experts during the hearing, it must file and serve written notice of this intention no later than October 22, 2003, identifying each expert, the expert's qualifications, and the subject on which he or she would be available to testify.

IT IS SO ORDERED.

Initials of Deputy Clerk 

cc: Judge Marshall
Parties of Record

1

2

Priority
SEND
 FAX
 CCM
 J-11 JS-6 **NO JS**
 J-11 JS-3
 Scan Only

Clerk U.S. District Court
 FILED
 CLERK, U.S. DISTRICT COURT
 JAN 11 2007
 BY
 CENTRAL DISTRICT OF CALIFORNIA
 DEPUTY

7

8

UNITED STATES DISTRICT COURT
 CENTRAL DISTRICT OF CALIFORNIA
 WESTERN DIVISION

9

12 LG PHILIPS LCD CO., LTD., Plaintiff	13) No. CV 02-6775 CBM (JTLx) 14 v. 15 TATUNG CO. OF AMERICA, TATUNG COMPANY and CHUNGHWA PICTURE TUBES, LTD., Defendants.	16) ORDER DISMISSING PLAINTIFF'S 17) SIDE-MOUNT PATENT 18) INFRINGEMENT CLAIMS FOR 19) LACK OF STANDING 20) AND RELATED COUNTERCLAIMS.
-------------------------------------------	--------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------

DOCKETED ON CM
 JAN 12 2007
 BY *[Signature]* 053

21

22 The matter before the Court, the Honorable Consuelo B. Marshall, United
 23 States District Judge presiding, is the dismissal of Plaintiff's side-mount patent
 24 infringement claims for lack of standing.

25

26

JURISDICTION

27

The Court has jurisdiction over this case pursuant to 28 U.S.C. §1331.

28

(1518)

SCANNED

FACTUAL AND PROCEDURAL BACKGROUND

LG. Philips LCD Co., Ltd. ("LPL"), a company incorporated and headquartered in Korea, filed this action on August 29, 2002, alleging that Defendants Tatung Co., Tatung Co. of America, and Chunghwa Picture Tubes, Ltd., infringed on its patents. LPL alleged infringement of six patents, two semiconductor patents and four side-mount patents, against Defendant Chunghwa Picture Tubes, Ltd. ("CPT"), a company incorporated and headquartered in Taiwan.

The Development and Manufacturing Agreement

In March 2004, CPT filed counterclaims against LPL and a third-party, LG Electronics Inc. ("LGE"), claiming that, by virtue of a 1996 Development and Manufacturing Agreement ("DMA"), a now-defunct company, Digital Electronics Corporation ("DEC"), was the true owner of the side-mount patents in dispute.¹ CPT claimed that, through succession, it had acquired DEC's rights under the DMA, including ownership of the side-mount patents. The DMA provided that disputes arising under the Agreement would be settled by arbitration, under the laws of the state of Massachusetts.

¹The DMA addressed the joint development and manufacture of a new mobile computer, nicknamed "Project X." See Development and Manufacturing Agreement Between Digital Equipment Corporation and LG Electronics Inc. for Laptop Computer (hereinafter *DMA*). LG.Philips is the successor-in-interest to LG Electronics Inc., pursuant to an assignment executed in September 1999.

1 **The Arbitral Proceeding**

2 On February 28, 2005, this Court ordered the parties to arbitrate certain
3 counterclaims filed by Defendant CPT arising out of the DMA between LGE and
4 DEC.² The Matter of Arbitration, *Chunghwa Picture Tubes, Ltd. vs. LG*
5 *Electronics, Inc. and LG.Philips LCD Co., Ltd.*, No. 50 133 T 00379 04, was held
6 at the International Centre for Dispute Resolution, an International Arbitration
7 Tribunal and Division of the American Arbitration Association (AAA). The
8 arbitration was conducted by a panel of three experienced and distinguished
9 arbitrators: Richard K. Jeydel, Edward B. Lahey, Jr., and David W. Plant
10 (collectively “Panel”). Mr. Jeydel, a veteran attorney with more than twenty years
11 of experience as an arbitrator, served as Chair of the Panel. Mr. Lahey, who
12 served for over twenty-five (25) years as General Counsel and Secretary of
13 PepsiCo., Inc., now teaches International Commercial Arbitration at Pace Law
14 School and serves as Chairman of the Board of Directors of the AAA. Mr. Plant,
15 an attorney who practiced for over forty (40) years with the law firm of Fish &
16 Neave (a prominent intellectual property law firm), has arbitrated over eighty-five
17 (85) disputes for the AAA, the International Chamber of Commerce, UNCITRAL,
18 and the World Intellectual Property Organization. Neither party has challenged
19
20
21
22
23

24
25
26
27
28
Counts I-VI and XXIII (insofar as they are based on assignment of rights under the
Project-X agreement) and Counts VII-X and XXIV. Order Granting In Part And
Denying In Part LG. Philips' and L.G. Electronics' Motion to Compel Arbitration of
Counts I-X and XXIII-XXIV, March 3, 2005.

1 that qualifications or expertise of the Panel.

2 The Panel issued an award ("Award") on June 20, 2006 with the following
3 rulings:

5 (1) The side mounting technology was developed in the course of and as an
6 integral part of the DMA. CPT is the successor in interest to DEC, the party
7 to the DMA, and has standing to assert all claims and defenses thereunder.

8 (2) DEC and its successors, by taking no action in the face of LG's repeated,
9 open and obvious actions in displaying the technology as its own at major
10 trade shows and its efforts to market and sell it to them (in the form of
components prominently marked with LG's patent claims), waived any
contractual rights they may have possessed.

11 (3) CPT's argument that the statute of limitation began to run when an
12 essential internal transfer of the patent rights within LG took place is
13 unavailing; even if CPT had not waived its rights, none of the arguably
applicable statute periods were tolled, and none of its contract claims were
timely brought.

14 (4) The Panel therefore declines, on contractual grounds, to transfer any LG
15 patent right to CPT, or to grant any other relief requested by Claimant. The
16 Panel similarly denies all counterclaims asserted by LG; but for CPT's
17 waiver, LG would have no right to any of the side mount intellectual
18 property here at issue. The CPT (Frame/Bovio) patent application is not
affected by and remains outside of this ruling since it has not been waived.³

19 (5) As to costs and fees, in light of the absence of a party prevailing on all
20 of the major issues, no attorneys' fees or other costs will be shifted and the
21 Panel will order that both its fees and expenses and the charges of the ICDR
shall be borne as incurred and all other costs and expenses shall be borne as
incurred.⁴

22 The Panel summarily denied all of Defendants' and Plaintiff's claims for

25 ³The CPT patent application and related patents are not the subject of this Order.

26 ⁴Award at 5-13.

1 relief. This Court confirmed the arbitration Panel's Award on September 29,
2 2006. In light of the Award – including the Panel's determination that the side-
3 mount technology was covered by the terms of the Agreement, and that pursuant
4 to the Agreement and the laws applicable thereto neither party was entitled to a
5 declaratory judgment of ownership of the side-mount technology – this Court, *sua*
6 *sponte*, ordered the parties to brief whether Plaintiff LG.Philips has standing to sue
7 for infringement of the patents related to the technology.

9

10 **STANDARD OF LAW**

11

12 Article III of the U.S. Constitution limits the jurisdiction of federal courts to
13 actual “cases” or “controversies.” *Allen v. Wright*, 468 U.S. 737, 750-51 (1984).
14 In order to establish Article III standing, a plaintiff must show : (1) “an invasion of
15 a legally protected interest” that is “concrete and particularized” and “actual and
16 imminent”; (2) a causal connection between the injury and the conduct that is the
17 subject of the complaint; and (3) that the injury is likely to be redressed by a
18 favorable decision. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992).
19 These requirements apply to patent cases in the same way that they apply to all
20 federal cases. *See, e.g., Paradise Creations, Inc. v. U V Sales Inc.*, 315 F.3d 1304,
21 1308-10 (Fed. Cir. 2003) (finding that plaintiff lacked “cognizable injury
22 necessary to assert standing under Article III of the Constitution” where it “held
23 no enforceable rights whatsoever in the patent at the time it filed suit”). Article
24 III standing is assessed at the time the original complaint was filed and cannot be
25

¹ cured retroactively. See *Keene Corp. v. United States*, 508 U.S. 200, 207 (1993);
² accord *Lujan*, 504 U.S. at 569 n.4 (1992).

The burden of establishing standing belongs to the party seeking to maintain the lawsuit.

ANALYSIS

I. Whether Plaintiff LG. Philips Has Standing to Assert Side-Mount Patent Infringement Claims

10 While 35 U.S.C. §281 provides that “a patentee shall have remedy by civil
11 action for infringement of his patents,” the requirements of Article III standing
12 must still be satisfied. In order to satisfy the Article III standing requirements of
13 *Lujan*, a putative patentee-plaintiff must establish that it has suffered an injury in
14 fact. There is no “injury” to a patentee who does not hold legal title to the
15 intellectual property which is the subject of the patent. *See Rite-Hite Corp. v.*
16 *Kelley Co., Inc.*, 56 F.3d 1538, 1551-1552 (Fed. Cir. 1995) (“Generally, one
17 seeking money damages for patent infringement must have held legal title to the
18 patent at the time of the infringement.”).

21 In the case at bar, the Panel's Award is supported in its entirety by the
22 language of the Agreement. Section 1.F of the Agreement indicates:

Because of its role as chief architect of the Product, Digital will solely own the intellectual property rights to all inventions and discoveries made during the course of the development of the Product by either party as more fully described in Section 9. In addition to the Specification, Digital will also solely own all schematics, electrical and mechanical drawings, and any

1 intellectual property rights relating thereto; and those rights to manufacture
2 or have manufactured the Product, Product options, and spares, all as more
fully described in Section 10.

3 DMA §1.F.

4 Section 9 of the Agreement defined invention as:

5 any idea, design, concept, technique, invention, discovery, or improvement,
6 regardless of patentability, made solely or jointly by a party and/or its
7 employees during the term of this Agreement and in performance of any
8 work under the Statement of Work issued hereunder, provided that either
9 the conception or reduction to practice thereof occurs during the term of this
10 Agreement and in performance of work under the Statement of Work.

11 DMA §9.

12 Section 9 further states:

13 Digital shall have the right to all inventions made by Digital and LGE
14 employees separately or jointly with the right to seek protection by
15 obtaining rights therefore and to claim all rights or priority thereunder. . . .
16 LGE shall, upon Digital's request and at Digital's expense, cause patent
17 applications to be filed thereon, [] and shall forthwith sign all such
18 applications over to Digital, its successors, and assigns.

19 DMA §9.

20 The Panel construed these provisions together to mean that if the
21 side-mount invention was developed during the development of the Hi Note Ultra
22 2000 computer, then it was made "in the performance of work under the Statement
23 of Work," and "DEC would be the owner of all intellectual property rights
24 pertaining thereto."⁵ The Panel found (in ruling #1) that the side-mount

25
26 ⁵Preliminary Ruling from Tom Simotas of the International Centre for Dispute
27
28

1 technology was developed in the course of the DMA, and that CPT (as successor
2 to DEC) had standing to assert claims and defenses on that basis; similarly, the
3 Panel found (in ruling #4) that LPL was not entitled to a declaratory judgment of
4 ownership, since “but for CPT’s waiver, LG would have no right to any of the side
5 mount intellectual property here at issue.” Award at 12.

7 The Court therefore finds that the Panel interpreted the relevant provisions
8 of the DMA to effect an assignment, not a promise to assign.⁶ There is nothing in
9 the Panel’s Award that indicates otherwise. Therefore, this case falls squarely
10 within the body of law governing assignment contracts. The Federal Circuit has
11 held that an assignment effectuates a transfer of title. *See FilmTec Corp. v.*
12 *Allied-Signal, Inc.*, 939 F.2d 1568, 1572 (Fed. Cir. 1991) (*overturned on other*
13 *grounds, FilmTec Corp. v. Hydranautics*, 982 F.2d 1546 (Fed. Cir. 1992))
14 (“between the time of an invention and the issuance of a patent, rights in an
15 invention may be assigned and legal title to the ensuing patent will pass to the
16 assignee upon grant of the patent.”). In *Imatec, Ltd. v. Apple Computer, Inc.*,
17 Judge Koeltl of the Southern District of New York denied standing to an assignor,
18 holding that “[o]nce an inventor has assigned the rights in a future invention,
19 neither the inventor nor a subsequent assignee of the inventor has standing to sue

20
21
22
23 Resolution (ICDR), March 10, 2005 (attached as Exhibit 2 to Decl. of Michael
24 Resch).

25 Plaintiff unconvincingly argues that the DMA was not an assignment, but rather was
26 “at most an agreement in which LGE gave DEC a right to own certain inventions.”
Pl.’s Mem. at 20.

1 for infringement of a patent arising from the assigned invention." *Imatec, Ltd. v.*
2 *Apple Computer, Inc.*, 81 F.Supp.2d 471, 481 (S.D.N.Y. 2000) (*aff'd* at 2001 U.S.
3 App. LEXIS 16841 (Fed. Cir.)).
4

5 Judge Koeltl reasoned that the language in the agreement indicated a present
6 assignment (not a promise to assign), and as such, the rights to the invention
7 vested in the assignee and no other party had standing to enforce the patents (even
8 the putative patentholder). *Id.* Judge Koeltl found the patents-in-suit were for
9 inventions covered under the agreement, and held that neither the named patent
10 owner nor any subsequent assignee had standing to sue for infringement of the
11 patents. *Id.* at 483.

13 In the case at bar, this Court has found that the arbitrators interpreted the
14 DMA to effect an assignment; as such, the rights to the side-mount technology
15 vested in the assignee (DEC and its successors) and no other party has standing to
16 enforce the patents. Moreover, the arbitrators clearly found in their Award that the
17 technology which was the subject of the patents-in-suit was covered by the
18 agreement. *See* Award at 5. Accordingly, LG.Philips does not have standing to
19 sue for infringement of the side-mount patents. Having assigned to DEC
20 ownership of the side-mount invention in the DMA in 1996, LGE had nothing to
21 give to LPL in September 1999; therefore, LGE's purported assignment of the
22 side-mount patents to LG. Philips in 1999 is a nullity. *See also FilmTec*, 939 F.2d
23 at 1572-73; *Pinpoint, Inc. v. Amazon.com, Inc.*, 347 F. Supp. 2d 579 (N.D. Ill.
24 2004) (Posner, J., *by designation*) (finding plaintiff lacked standing to sue because
25
26
27

1 it had obtained patent rights from a party who had previously assigned away the
2 patented invention).

3 Plaintiff argues that CPT's waiver amounted to a relinquishment of any
4 contract right to own the invention. *See* Pl.'s Mem. 22. While any such waiver
5 may bar CPT from asserting its own claims of infringement under the patents-in-
6 suit, it does not give a patentee (LG.Philips) the affirmative right to assert
7 infringement claims for inventions covered under an assignment agreement. *See*
8 also *Viskase Corp. v. American Nat'l Can Co.*, 261 F.3d 1316, 1328 (Fed. Cir.
9 2001) ("Inventors who have an obligation to assign their inventions have no
10 ownership interest in the patents on those inventions.").

13 In *Paradise Creations, Inc. v. U V Sales Inc.*, the Federal Circuit found that
14 the appellant "lacked a cognizable injury necessary to assert standing under Article
15 III of the Constitution" because it "held no enforceable rights whatsoever in the
16 patent at the time it filed suit." 315 F.3d 1304, 1310 (Fed. Cir. 2003). The Court
17 hereby finds that LPL had no enforceable rights in the '237, '457, '942 and '537
18 patents at the time the lawsuit was filed because, pursuant to the Development and
19 Manufacturing Agreement, LPL had no rights to the intellectual property covered
20 by those patents. Therefore, LPL lacks standing to sue CPT for infringement of
21 the '237, '457, '942 and '537 side-mount patents.

24 Finally, the issue of standing is different from, and independent of, whether
25 LPL or CPT currently has ownership rights in the side-mount patents. Standing is
26 a jurisdictional issue, which is not to be confused with the merits of the case. *See*,

1 e.g., *City of Los Angeles v. Lyons*, 461 U.S. 95, 101 (1983) (determining that in
2 order for a party “to invoke the jurisdiction of the federal courts,” that party “must
3 satisfy the threshold requirement imposed by Article III of the Constitution . . .”).
4

5 **CONCLUSION**
6

7 Based on the foregoing, the Court hereby **DISMISSES** Plaintiff LG.
8 Philips, LCD, Ltd.’s claims for infringement of the side-mount patents (U.S.
9 Patent Nos. 5,926,237, 6,002,457, 6,020,942, and 6,373,537) against Defendant
10 CPT and the Defendants in Consolidated Case Nos. CV 03-2886, CV 03-2866,
11 CV 03-2884 and CV 03-2885 (Consolidated Defendants ViewSonic Corporation,
12 Jean Co., Lite-On Technology, TPV Technology, and Envision Peripherals, Inc.),
13 whom the Court deems to have joined in the motion *ab initio*.
14

15
16 **IT IS SO ORDERED.**
17 DATE: January 11, 2007


18 CONSUELO B. MARSHALL
19 UNITED STATES DISTRICT JUDGE

20
21
22
23
24
25
26
27
28

EXHIBIT G

Boise-195984.1 0000000-00001

1
 2 Priority _____
 3 Send _____
 4 Enter _____
 5 Closed _____
 JS-5/JS-6 _____
 JS-2/JS-3 _____
 Scan Only _____
 6

U.S. DISTRICT COURT

FILED
CLERK, U.S. DISTRICT COURT
JAN 19 2007
CENTRAL DISTRICT OF CALIFORNIA
BY <i>[Signature]</i> DEPUTY

SCANNED

7
 8 UNITED STATES DISTRICT COURT
 9 CENTRAL DISTRICT OF CALIFORNIA
 10 WESTERN DIVISION

11
 12 LG PHILIPS LCD CO., LTD., } No. CV 02-6775 CBM (JTLx)
 13 Plaintiff }
 14 v. } AMENDED ORDER DISMISSING
 15 TATUNG CO. OF AMERICA, } PLAINTIFF'S SIDE-MOUNT
 16 TATUNG COMPANY and } PATENT INFRINGEMENT CLAIMS
 17 CHUNGHWA PICTURE TUBES, LTD., } FOR LACK OF STANDING
 18 Defendants.
 19 AND RELATED COUNTERCLAIMS.

DOCKETED ON CM
JAN 19 2007
BY <i>[Signature]</i> 153

20
 21
 22 The matter before the Court, the Honorable Consuelo B. Marshall, United
 23 States District Judge presiding, is the dismissal of Plaintiff's side-mount patent
 24 infringement claims for lack of standing.
 25

26 JURISDICTION

27 The Court has jurisdiction over this case pursuant to 28 U.S.C. §1331.
 28

(1543)

FACTUAL AND PROCEDURAL BACKGROUND

1 LG. Philips LCD Co., Ltd. ("LPL"), a company incorporated and
2 headquartered in Korea, filed this action on August 29, 2002, alleging that
3 Defendants Tatung Co., Tatung Co. of America, and Chunghwa Picture Tubes,
4 Ltd., infringed on its patents. LPL alleged infringement of six patents, two
5 semiconductor patents and four side-mount patents, against Defendant Chunghwa
6 Picture Tubes, Ltd. ("CPT"), a company incorporated and headquartered in
7 Taiwan. On October 1, 2003, LPL amended its Complaint to assert that co-
8 Defendants Tatung Co. and Tatung Company of America also infringed three of
9 the four side-mount patents.

10 **The Development and Manufacturing Agreement**

11 In March 2004, CPT filed counterclaims against LPL and a third-party, LG
12 Electronics Inc. ("LGE"), claiming that, by virtue of a 1996 Development and
13 Manufacturing Agreement ("DMA"), a now-defunct company, Digital Electronics
14 Corporation ("DEC"), was the true owner of the side-mount patents in dispute.¹
15 CPT claimed that, through succession, it had acquired DEC's rights under the
16 DMA, including ownership of the side-mount patents. The DMA provided that
17 disputes arising under the Agreement would be settled by arbitration, under the

18
19
20
21
22
23
24 The DMA addressed the joint development and manufacture of a new mobile
25 computer, nicknamed "Project X." See Development and Manufacturing Agreement
26 Between Digital Equipment Corporation and LG Electronics Inc. for Laptop
27 Computer (hereinafter *DMA*). LG.Philips is the successor-in-interest to LG
28 Electronics Inc., pursuant to an assignment executed in September 1999.

1 laws of the state of Massachusetts.

2 **The Arbitral Proceeding**

3
4 On February 28, 2005, this Court ordered the parties to arbitrate certain
5 counterclaims filed by Defendant CPT arising out of the DMA between LGE and
6 DEC.² The Matter of Arbitration, *Chunghwa Picture Tubes, Ltd. vs. LG*
7 *Electronics, Inc. and LG.Philips LCD Co., Ltd.*, No. 50 133 T 00379 04, was held
8 at the International Centre for Dispute Resolution, an International Arbitration
9 Tribunal and Division of the American Arbitration Association (AAA). The
10 arbitration was conducted by a panel of three experienced and distinguished
11 arbitrators: Richard K. Jeydel, Edward B. Lahey, Jr., and David W. Plant
12 (collectively "Panel"). Mr. Jeydel, a veteran attorney with more than twenty years
13 of experience as an arbitrator, served as Chair of the Panel. Mr. Lahey, who
14 served for over twenty-five (25) years as General Counsel and Secretary of
15 PepsiCo., Inc., now teaches International Commercial Arbitration at Pace Law
16 School and serves as Chairman of the Board of Directors of the AAA. Mr. Plant,
17 an attorney who practiced for over forty (40) years with the law firm of Fish &
18 Neave (a prominent intellectual property law firm), has arbitrated over eighty-five
19 (85) disputes for the AAA, the International Chamber of Commerce, UNCITRAL,
20
21
22
23

24
25 Counts I-VI and XXIII (insofar as they are based on assignment of rights under the
26 Project-X agreement) and Counts VII-X and XXIV. Order Granting In Part And
27 Denying In Part LG. Philips' and L.G. Electronics' Motion to Compel Arbitration of
28 Counts I-X and XXIII-XXIV, March 3, 2005.

1 and the World Intellectual Property Organization. Neither party has challenged
2 that qualifications or expertise of the Panel.

3 The Panel issued an award ("Award") on June 20, 2006 with the following
4 rulings:

- 5 (1) The side mounting technology was developed in the course of and as an
6 integral part of the DMA. CPT is the successor in interest to DEC, the party
7 to the DMA, and has standing to assert all claims and defenses thereunder.
8
(2) DEC and its successors, by taking no action in the face of LG's repeated,
9 open and obvious actions in displaying the technology as its own at major
10 trade shows and its efforts to market and sell it to them (in the form of
11 components prominently marked with LG's patent claims), waived any
contractual rights they may have possessed.
12
(3) CPT's argument that the statute of limitation began to run when an
13 essential internal transfer of the patent rights within LG took place is
14 unavailing; even if CPT had not waived its rights, none of the arguably
15 applicable statute periods were tolled, and none of its contract claims were
timely brought.
16
(4) The Panel therefore declines, on contractual grounds, to transfer any LG
17 patent right to CPT, or to grant any other relief requested by Claimant. The
18 Panel similarly denies all counterclaims asserted by LG; but for CPT's
19 waiver, LG would have no right to any of the side mount intellectual
property here at issue. The CPT (Frame/Bovio) patent application is not
affected by and remains outside of this ruling since it has not been waived.³
20
(5) As to costs and fees, in light of the absence of a party prevailing on all
21 of the major issues, no attorneys' fees or other costs will be shifted and the
22 Panel will order that both its fees and expenses and the charges of the ICDR
shall be borne as incurred and all other costs and expenses shall be borne as
incurred.⁴

23
24
25 ³The CPT patent application and related patents are not the subject of this Order.
26
27 ⁴Award at 5-13.
28

1 The Panel summarily denied all of Defendants' and Plaintiff's claims for
2 relief. This Court confirmed the arbitration Panel's Award on September 29,
3 2006. In light of the Award – including the Panel's determination that the side-
4 mount technology was covered by the terms of the Agreement, and that pursuant
5 to the Agreement and the laws applicable thereto neither party was entitled to a
6 declaratory judgment of ownership of the side-mount technology – this Court, *sua*
7 *sponte*, ordered the parties to brief whether Plaintiff LG.Philips has standing to sue
8 for infringement of the patents related to the technology.

STANDARD OF LAW

Article III of the U.S. Constitution limits the jurisdiction of federal courts to actual “cases” or “controversies.” *Allen v. Wright*, 468 U.S. 737, 750-51 (1984). In order to establish Article III standing, a plaintiff must show : (1) “an invasion of a legally protected interest” that is “concrete and particularized” and “actual and imminent”; (2) a causal connection between the injury and the conduct that is the subject of the complaint; and (3) that the injury is likely to be redressed by a favorable decision. *Lujan v. Defenders of Wildlife*, 504 U.S. 555, 560-61 (1992). These requirements apply to patent cases in the same way that they apply to all federal cases. See, e.g., *Paradise Creations, Inc. v. UV Sales Inc.*, 315 F.3d 1304, 1308-10 (Fed. Cir. 2003) (finding that plaintiff lacked “cognizable injury necessary to assert standing under Article III of the Constitution” where it “held no enforceable rights whatsoever in the patent at the time it filed suit”). Article

¹ III standing is assessed at the time the original complaint was filed and cannot be cured retroactively. See *Keene Corp. v. United States*, 508 U.S. 200, 207 (1993);
² *accord Lujan*, 504 U.S. at 569 n.4 (1992).

5 The burden of establishing standing belongs to the party seeking to maintain
6 the lawsuit.

ANALYSIS

I. Whether Plaintiff LG. Philips Has Standing to Assert Side-Mount Patent Infringement Claims

11 While 35 U.S.C. §281 provides that “a patentee shall have remedy by civil
12 action for infringement of his patents,” the requirements of Article III standing
13 must still be satisfied. In order to satisfy the Article III standing requirements of
14 *Lujan*, a putative patentee-plaintiff must establish that it has suffered an injury in
15 fact. There is no “injury” to a patentee who does not hold legal title to the
16 intellectual property which is the subject of the patent. *See Rite-Hite Corp. v.*
17 *Kelley Co., Inc.*, 56 F.3d 1538, 1551-1552 (Fed. Cir. 1995) (“Generally, one
18 seeking money damages for patent infringement must have held legal title to the
19 patent at the time of the infringement.”).

22 In the case at bar, the Panel's Award is supported in its entirety by the
23 language of the Agreement. Section 1.F of the Agreement indicates:

Because of its role as chief architect of the Product, Digital will solely own the intellectual property rights to all inventions and discoveries made during the course of the development of the Product by either party as more fully

1 described in Section 9. In addition to the Specification, Digital will also
2 solely own all schematics, electrical and mechanical drawings, and any
3 intellectual property rights relating thereto; and those rights to manufacture
4 or have manufactured the Product, Product options, and spares, all as more
fully described in Section 10.

5 DMA §1.F.

6 Section 9 of the Agreement defined invention as:

7 any idea, design, concept, technique, invention, discovery, or improvement,
8 regardless of patentability, made solely or jointly by a party and/or its
9 employees during the term of this Agreement and in performance of any
10 work under the Statement of Work issued hereunder, provided that either
11 the conception or reduction to practice thereof occurs during the term of this
12 Agreement and in performance of work under the Statement of Work.

12 DMA §9.

13 Section 9 further states:

14 Digital shall have the right to all inventions made by Digital and LGE
15 employees separately or jointly with the right to seek protection by
16 obtaining rights therefore and to claim all rights or priority thereunder. . .
17 LGE shall, upon Digital's request and at Digital's expense, cause patent
18 applications to be filed thereon, [] and shall forthwith sign all such
19 applications over to Digital, its successors, and assigns.

20 DMA §9.

21 The Panel construed these provisions together to mean that if the
22 side-mount invention was developed during the development of the Hi Note Ultra
23 2000 computer, then it was made "in the performance of work under the Statement
24 of Work," and "DEC would be the owner of all intellectual property rights
25

26

27

28

1 pertaining thereto.”⁵ The Panel found (in ruling #1) that the side-mount
2 technology was developed in the course of the DMA, and that CPT (as successor
3 to DEC) had standing to assert claims and defenses on that basis; similarly, the
4 Panel found (in ruling #4) that LPL was not entitled to a declaratory judgment of
5 ownership, since “but for CPT’s waiver, LG would have no right to any of the side
6 mount intellectual property here at issue.” Award at 12.

8 The Court therefore finds that the Panel interpreted the relevant provisions
9 of the DMA to effect an assignment, not a promise to assign.⁶ There is nothing in
10 the Panel’s Award that indicates otherwise. Therefore, this case falls squarely
11 within the body of law governing assignment contracts. The Federal Circuit has
12 held that an assignment effectuates a transfer of title. *See FilmTec Corp. v.*
13 *Allied-Signal, Inc.*, 939 F.2d 1568, 1572 (Fed. Cir. 1991) (*overturned on other*
14 *grounds, FilmTec Corp. v. Hydranautics*, 982 F.2d 1546 (Fed. Cir. 1992))

15 (“between the time of an invention and the issuance of a patent, rights in an
16 invention may be assigned and legal title to the ensuing patent will pass to the
17 assignee upon grant of the patent.”). In *Imatec, Ltd. v. Apple Computer, Inc.*,
18 Judge Koeltl of the Southern District of New York denied standing to an assignor,
19

22 ⁵Preliminary Ruling from Tom Simotas of the International Centre for Dispute
23 Resolution (ICDR), March 10, 2005 (attached as Exhibit 2 to Decl. of Michael
24 Resch).

25 Plaintiff unconvincingly argues that the DMA was not an assignment, but rather was
26 “at most an agreement in which LGE gave DEC a right to own certain inventions.”
27 Pl.’s Mem. at 20.

1 holding that "[o]nce an inventor has assigned the rights in a future invention,
2 neither the inventor nor a subsequent assignee of the inventor has standing to sue
3 for infringement of a patent arising from the assigned invention." *Imatec, Ltd.* v.
4 *Apple Computer, Inc.*, 81 F.Supp.2d 471, 481 (S.D.N.Y. 2000) (*aff'd* at 2001 U.S.
5 App. LEXIS 16841 (Fed. Cir.)).
6

7 Judge Koeltl reasoned that the language in the agreement indicated a present
8 assignment (not a promise to assign), and as such, the rights to the invention
9 vested in the assignee and no other party had standing to enforce the patents (even
10 the putative patentholder). *Id.* Judge Koeltl found the patents-in-suit were for
11 inventions covered under the agreement, and held that neither the named patent
12 owner nor any subsequent assignee had standing to sue for infringement of the
13 patents. *Id.* at 483.
14

15 In the case at bar, this Court has found that the arbitrators interpreted the
16 DMA to effect an assignment; as such, the rights to the side-mount technology
17 vested in the assignee (DEC and its successors) and no other party has standing to
18 enforce the patents. Moreover, the arbitrators clearly found in their Award that the
19 technology which was the subject of the patents-in-suit was covered by the
20 agreement. *See Award at 5.* Accordingly, LG.Philips does not have standing to
21 sue for infringement of the side-mount patents. Having assigned to DEC
22 ownership of the side-mount invention in the DMA in 1996, LGE had nothing to
23 give to LPL in September 1999; therefore, LGE's purported assignment of the
24 side-mount patents to LG. Philips in 1999 is a nullity. *See also FilmTec*, 939 F.2d
25
26
27

1 at 1572-73; *Pinpoint, Inc. v. Amazon.com, Inc.*, 347 F. Supp. 2d 579 (N.D. Ill.
2 2004) (Posner, J., by designation) (finding plaintiff lacked standing to sue because
3 it had obtained patent rights from a party who had previously assigned away the
4 patented invention).
5

6 Plaintiff argues that CPT's waiver amounted to a relinquishment of any
7 contract right to own the invention. See Pl.'s Mem. 22. While any such waiver
8 may bar CPT from asserting its own claims of infringement under the patents-in-
9 suit, it does not give a patentee (LG.Philips) the affirmative right to assert
10 infringement claims for inventions covered under an assignment agreement. See
11 also *Viskase Corp. v. American Nat'l Can Co.*, 261 F.3d 1316, 1328 (Fed. Cir.
12 2001) ("Inventors who have an obligation to assign their inventions have no
13 ownership interest in the patents on those inventions.").

14 In *Paradise Creations, Inc. v. U V Sales Inc.*, the Federal Circuit found that
15 the appellant "lacked a cognizable injury necessary to assert standing under Article
16 III of the Constitution" because it "held no enforceable rights whatsoever in the
17 patent at the time it filed suit." 315 F.3d 1304, 1310 (Fed. Cir. 2003). The Court
18 hereby finds that LPL had no enforceable rights in the '237, '457, '942 and '537
19 patents at the time the lawsuit was filed because, pursuant to the Development and
20 Manufacturing Agreement, LPL had no rights to the intellectual property covered
21 by those patents. Therefore, LPL lacks standing to sue CPT, Tatung Company, or
22 Tatung Co. of America for infringement of the '237, '457, '942 and '537
23 side-mount patents.
24
25
26

1 Finally, the issue of standing is different from, and independent of, whether
2 LPL or CPT currently has ownership rights in the side-mount patents. Standing is
3 a jurisdictional issue, which is not to be confused with the merits of the case. See,
4 e.g., *City of Los Angeles v. Lyons*, 461 U.S. 95, 101 (1983) (determining that in
5 order for a party "to invoke the jurisdiction of the federal courts," that party "must
6 satisfy the threshold requirement imposed by Article III of the Constitution . . .").
7

8

9

CONCLUSION

10 Based on the foregoing, the Court hereby **DISMISSES** Plaintiff LG.
11 Philips, LCD, Ltd.'s claims for infringement of the side-mount patents (U.S.
12 Patent Nos. 5,926,237, 6,002,457, 6,020,942, and 6,373,537) against Defendants
13 CPT, Tatung Company of America, and Tatung Company, and Defendants in
14 Consolidated Case Nos. CV 03-2886, CV 03-2866, CV 03-2884 and CV 03-2885
15 (Consolidated Defendants ViewSonic Corporation, Jean Co., Lite-On Technology,
16 TPV Technology, and Envision Peripherals, Inc.), whom the Court deems to have
17 joined in the motion *ab initio*.
18

20

21 IT IS SO ORDERED.

22 DATE: January 19, 2007

23 CONSUELO B. MARSHALL
UNITED STATES DISTRICT JUDGE

24

25

26

27

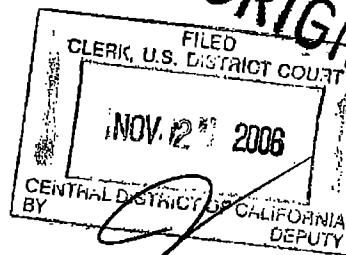
28

EXHIBIT H

12/05/2006 15:22 FAX 2138940045

JUDGE MARSHALL

002



UNITED STATES DISTRICT COURT

FOR THE CENTRAL DISTRICT OF CALIFORNIA

WESTERN DIVISION

10	LG.PHILIPS LCD CO., LTD.,)	No. CV 02-6775 CBM (JTLx)
11)	
12	Plaintiff,)	VERDICT FORM
13)	
14	v.)	
15)	
16	TATUNG CO. OF AMERICA, et al.,)	
17)	
18	Defendants.)	
19)	
20)	
21)	
22)	
23)	
24)	
25)	
26)	
27)	
28)	

NFPV

1 We, the jury, unanimously find as follows:

2 **I. INFRINGEMENT**

- 3 A. Do you find that LG.Philips has proven that it is more likely than not that CPT
4 literally infringed the claims of the patents-in-suit. (A "YES" answer is a finding for
5 LG.Philips. A "NO" answer is a finding for CPT.)

'737 Patent	YES	NO
Claim 1		X

'449 Patent	YES	NO
Claim 1	X	
Claim 10		X
Claim 11		X

- 14 B. Do you find that LG.Philips has proven that it is more likely than not that
15 Tatung Co. literally infringed the claims of the patents-in-suit. (A "YES" answer is a
16 finding for LG.Philips. A "NO" answer is a finding for Tatung.)

'737 Patent	YES	NO
Claim 1		X

'449 Patent	YES	NO
Claim 1	X	
Claim 10		X
Claim 11		X

1 C. Do you find that LG.Philips has proven that it is more likely than not that
2 Tatung Co. of America literally infringed the claims of the patents-in-suit. (A "YES"
3 answer is a finding for LG.Philips. A "NO" answer is a finding for Tatung Co. of
4 America.)

'737 Patent	YES	NO
Claim 1		X

'449 Patent	YES	NO
Claim 1	X	
Claim 10		X
Claim 11		X

II. INFRINGEMENT – DOCTRINE OF EQUIVALENTS

A. Do you find that LG.Philips has proven that it is more likely than not that CPT infringed the claims of the patents-in-suit under the doctrine of equivalents. (A "YES" answer is a finding for LG.Philips. A "NO" answer is a finding for CPT.)

'737 Patent	YES	NO
Claim 1	X	

'449 Patent	YES	NO
Claim 10		X
Claim 11		X

1 B. Do you find that LG.Philips has proven that it is more likely than not that
2 Tatung Co. infringed the claims of the patents-in-suit under the doctrine of
3 equivalents. (A "YES" answer is a finding for LG.Philips. A "NO" answer is a
4 finding for Tatung.)
5

'737 Patent	YES	NO
Claim 1	X	

'449 Patent	YES	NO
Claim 10		X
Claim 11		X

13 C. Do you find that LG.Philips has proven that it is more likely than not that
14 Tatung Co. of America infringed the claims of the patents-in-suit under the doctrine
15 of equivalents. (A "YES" answer is a finding for LG.Philips. A "NO" answer is a
16 finding for Tatung Co. of America.)
17

'737 Patent	YES	NO
Claim 1	X	

'449 Patent	YES	NO
Claim 10		X
Claim 11		X

1 **III. VALIDITY**

2 Do you find that Defendants have proven that it is highly probable that any of the
3 following claims of the LG.Philips patents-in-suit is invalid? (A "YES" answer is a
4 finding for CPT, Tatung Co., and Tatung Co. of America. A "NO" answer is a
5 finding for LG.Philips.)

'737 Patent	YES	NO
Claim 1		X

6 Assume that the '449 Patent is valid.
7

11 **If you answered "YES" to any of the questions in either Section I or Section
12 II, AND you answer "NO" in Section III, then complete the questions in Sections
13 IV and V.**

15 **If you answered "YES" to any of the questions in either Section I or Section
16 II, AND you answer "YES" in Section III, then complete Sections IV and V as
17 regarding the '449 Patent only.**

19 **If you answered "NO" to all of the questions in both Section I and Section II,
20 sign and date this form and bring it to the courtroom.**

22 **IV. WILLFUL INFRINGEMENT**

23 A. Do you find that LG.Philips has proven that it is highly probable that any
24 infringement by CPT of the claims of the LPL patents-in-suit was willful?

'737 Patent	YES	NO
Claim 1	X	

	'449 Patent	YES	NO
2	Claim 1	X	
3	Claim 10		X
4	Claim 11		X

1 B. Do you find that LG.Philips has proven that it is highly probable that any
2 infringement by Tatung Co. of the claims of the patents-in-suit was willful?
3

'737 Patent	YES	NO
Claim 1	X	

'449 Patent	YES	NO
Claim 1	X	
Claim 10		X
Claim 11		X

12 C. Do you find that LG.Philips has proven that it is highly probable that any
13 infringement by Tatung Co. of America of the claims of the patents-in-suit was
14 willful?
15

'737 Patent	YES	NO
Claim 1	X	

'449 Patent	YES	NO
Claim 1	X	
Claim 10		X
Claim 11		X

1 V. DAMAGES

2 A. Damages – CPT

3 What sum of money would fairly and adequately compensate LG.Philips for CPT's
4 infringement? \$ 50,000,000.00

5 B. Damages – Tatung Co.

6 What sum of money would fairly and adequately compensate LG.Philips for Tatung
7 Co.'s infringement? \$ 3,000,000.00

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

1

2

C. Damages – Tatung Co. of America

3

4 What sum of money would fairly and adequately compensate LG.Philips for Tatung
5 Co. of America's infringement? \$ 504,000.00

6

7 Each juror must sign the verdict form to reflect that a unanimous verdict has been
8 reached.

9

10 Dated: November 21, 2006


(FOREPERSON)

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

26

27

28

EXHIBIT I

Boise-195984.1 0000000-00001

**IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE**

LG.PHILIPS LCD CO., LTD.

Plaintiff,

v.

TATUNG CO.;
TATUNG COMPANY OF AMERICA, INC.;
AND VIEWSONIC CORPORATION

Defendants.

0 4 - 3 4 3

Civil Action No. _____

DEMAND FOR TRIAL BY JURY

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff LG.Philips LCD Co., Ltd. ("LPL") for its Complaint against Defendants Tatung Co.; Tatung Company of America, Inc.; and ViewSonic Corporation (collectively the "Defendants") for preliminary and permanent injunctive and declaratory relief and for damages, including treble or multiple damages, for patent infringement, states and alleges as follows:

NATURE OF THE ACTION

1. LPL is the owner of United States Patent No. 6,498,718 ("the '718 Patent") and United States Patent No. 6,501,641 ("the '641 Patent") (collectively the "Patents-in-Suit"). This is a civil action for the infringement of the Patents-in-Suit, including the willful infringement of the Patents-in-Suit by Defendants.

2. The technology at issue involves flat panel display devices (e.g. liquid crystal display devices) and methods for assembling flat panel display devices. Flat panel display devices are most notably associated with flat-screen computer monitors and flat-screen televisions.

THE PARTIES

3. Plaintiff LPL is a corporation organized under the laws of the Republic of Korea having a place of business located in Seoul, Korea.

4. Defendant Tatung Co. ("Tatung") is a Taiwanese corporation, having a place of business at 22 Chungshan N Rd. Section 3, 10451 Taipei, Taiwan.

5. Defendant Tatung Company of America, Inc. ("Tatung America") is a subsidiary of Tatung. Tatung America is a California corporation, having a place of business at 2850 El Presidio Street, Long Beach, California 90810. Tatung America markets and sells Tatung's products throughout the United States.

6. Defendant ViewSonic Corporation ("ViewSonic") is a Delaware Corporation, having a place of business at 381 Brea Canyon Road, Walnut, California 91789.

JURISDICTION AND VENUE

7. This action is based upon and arises under the Patent Laws of the United States, 35 U.S.C. § 100 *et seq.*, and in particular §§ 271, 281, 283, 284 and 285, and is intended to redress infringement of the Patents-in-Suit owned by LPL.

8. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

9. Defendants have transacted and continue to transact business in the United States and in this judicial district by: importing or causing to be imported; using or causing to be used; offering to sell or causing to be offered for sale; and/or selling or causing to be sold directly, through intermediaries and/or as an intermediary, a variety of products that infringe the Patents-in-Suit to customers in the United States, including

customers in this judicial district, and Defendants will continue to do so unless enjoined by this Court.

10. This Court has personal jurisdiction over ViewSonic, and venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) and (c) and 28 U.S.C. § 1400(b), in that ViewSonic is incorporated and therefore resides in Delaware for purposes of establishing venue in this district, in that ViewSonic has been doing business in Delaware, including the infringing acts alleged herein, both directly, through one or more intermediaries, and/or as an intermediary, and will continue to do so unless enjoined by this Court.

11. This Court has personal jurisdiction over Tatung and venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) and (c) and (d), and 28 U.S.C. § 1400(b), in that Tatung is committing and is causing acts of patent infringement within the United States and within this judicial district, including the infringing acts alleged herein, and in that Tatung has caused and causes injury and damages in this judicial district by acts or omissions outside of this judicial district, including but not limited to utilization of an established distribution channel to ship a variety of products that infringe the Patents-in-Suit into the United States and into this judicial district while deriving substantial revenue from services or things used or consumed within this judicial district, and will continue to do so unless enjoined by this Court.

12. This Court has personal jurisdiction over Tatung America and venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391(b) and (c), and 28 U.S.C. § 1400(b), in that Tatung America is committing acts of patent infringement within the United States and within this judicial district, including the infringing acts alleged herein,

both directly, through one or more intermediaries, and as an intermediary. Tatung America regularly imports large quantities of Tatung LCD products into the United States for distribution throughout the United States, including in this judicial district. Tatung America is intimately involved in the distribution of infringing LCD products and is acutely aware that its products are sold throughout the United States, including in Delaware. Tatung America's established distribution network consists of numerous national distributors and resellers, and Tatung America distributes its products directly to national retail outlets, including Best Buy, Wal-Mart, Sam's Club, and Tweeter, all of which have store locations in Delaware. By shipping into, offering to sell in, using, or selling products that infringe the Patents-in-Suit in this judicial district, or by inducing or causing those acts to occur, Tatung America has transacted and transacts business and performs work and services in this judicial district, has contracted and contracts to supply services and things in this judicial district, has caused and causes injury and damages in this judicial district by acts and omissions in this judicial district, and has caused and causes injury and damages in this judicial district by acts or omissions outside of this judicial district while deriving substantial revenue from services or things used or consumed within this judicial district, and will continue to do so unless enjoined by this Court.

THE PATENTS-IN-SUIT

13. On December 24, 2002, the '718 Patent, entitled "Portable Computer And Method For Mounting A Flat Panel Display Device Thereon," was duly and legally issued, listing LPL as assignee. A copy of the '718 Patent is attached as Exhibit A.

14. On December 31, 2002, the '641 Patent, entitled "Portable Computer Having A Flat Panel Display Device," was duly and legally issued, listing LPL as assignee. A copy of the '641 Patent is attached as Exhibit B.

15. LPL owns the Patents-in-Suit and possesses the right to sue and to recover for infringement of the Patents-in-Suit.

16. Defendants have been and are infringing, continuing to and actively inducing infringement of the Patents-in-Suit because they at least use, cause to be used, make, import, cause to be imported, offer for sale, sell, and/or cause to be sold in this judicial district and elsewhere in the United States products that infringe the Patents-in-Suit.

COUNT I
(PATENT INFRINGEMENT BY DEFENDANTS TATUNG AND
TATUNG AMERICA OF THE '718 PATENT)

17. The allegations in the foregoing paragraphs of this Complaint are incorporated by reference herein as if restated and set forth in full.

18. Defendants Tatung and Tatung America have infringed, actively induced and/or contributed to the infringement of the '718 Patent by making, using, causing to be used, offering to sell, causing to be offered for sale, selling, causing to be sold, importing, and/or causing to be imported products that infringe one or more claims of the '718 Patent in this judicial district and elsewhere in the United States. Such infringing products include at least the product depicted in Exhibit C, which is identified as a Tatung L17AMTN-U01 monitor, offered for sale and sold by at least Avnet Applied Computing to a customer in Delaware; as well as products that infringe the '718 Patent that are not yet identified.

19. The infringing products that are made, used, caused to be used, sold, caused to be sold, offered for sale, caused to be offered for sale, imported, and/or caused to be imported by Defendants Tatung and Tatung America meet each and every limitation of at least one claim of the '718 Patent, either literally or equivalently.

20. LPL has been and will continue to be injured by Defendants Tatung and Tatung America's past and continuing infringement of the '718 Patent and is without adequate remedy at law.

21. Defendants Tatung and Tatung America have, upon information and belief, infringed and are infringing the '718 Patent with knowledge of LPL's patent rights and without a reasonable basis for believing their conduct is lawful. Defendants Tatung and Tatung America's infringement has been and continues to be willful and deliberate, and will continue unless enjoined by the Court, making this an exceptional case and entitling LPL to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285.

**COUNT II
(PATENT INFRINGEMENT BY DEFENDANTS TATUNG AND
TATUNG AMERICA OF THE '641 PATENT)**

22. The allegations in the foregoing paragraphs of this Complaint are incorporated by reference herein as if restated and set forth in full.

23. Defendants Tatung and Tatung America have infringed, actively induced and/or contributed to the infringement of the '641 Patent by at least making, using, causing to be used, offering to sell, causing to be offered for sale, selling, causing to be sold, importing, and/or causing to be imported products that infringe one or more claims of the '641 Patent in this judicial district and elsewhere in the United States. Such

infringing products include at least the product depicted in Exhibit C, which is identified as a Tatung L17AMTN monitor, offered for sale and sold by at least Avnet Applied Computing to a customer in Delaware; as well as products that infringe the '641 Patent that are not yet identified.

24. The infringing products that are made, used, caused to be used, sold, caused to be sold, offered for sale, caused to be offered for sale, imported, and/or caused to be imported by Defendants Tatung and Tatung America meet each and every limitation of at least one claim of the '641 Patent, either literally or equivalently.

25. LPL has been and will continue to be injured by Defendants Tatung's and Tatung America's past and continuing infringement of the '641 Patent and is without adequate remedy at law.

26. Defendants Tatung and Tatung America have, upon information and belief, infringed and are infringing the '641 Patent with knowledge of LPL's patent rights and without a reasonable basis for believing their conduct is lawful. Defendants Tatung and Tatung America's infringement has been and continues to be willful and deliberate, and will continue unless enjoined by the Court, making this an exceptional case and entitling LPL to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285.

**COUNT III
(PATENT INFRINGEMENT BY DEFENDANT VIEWSONIC OF THE '718
PATENT)**

27. The allegations in the foregoing paragraphs of this Complaint are incorporated by reference herein as if restated and set forth in full.

28. Defendant ViewSonic has infringed, actively induced and/or contributed to the infringement of the '718 Patent by making, using, causing to be used, offering to sell, causing to be offered for sale, selling, causing to be sold, importing, and/or causing to be imported products that infringe one or more claims of the '718 Patent in this judicial district and elsewhere in the United States. Such infringing products include at least the product depicted in Exhibit D, which is identified as a ViewSonic VX900 monitor, offered for sale and sold by at least Outpost.com to a customer in Delaware; as well as products that infringe the '718 Patent that are not yet identified.

29. The infringing products that are made, used, caused to be used, sold, caused to be sold, offered for sale, caused to be offered for sale, imported, and/or caused to be imported by Defendant ViewSonic meet each and every limitation of at least one claim of the '718 Patent, either literally or equivalently.

30. LPL has been and will continue to be injured by Defendant ViewSonic's past and continuing infringement of the '718 Patent and is without adequate remedy at law.

31. Defendant ViewSonic has, upon information and belief, infringed and is infringing the '718 Patent with knowledge of LPL's patent rights and without a reasonable basis for believing its conduct is lawful. Defendant ViewSonic's infringement has been and continues to be willful and deliberate, and will continue unless enjoined by the Court, making this an exceptional case and entitling LPL to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285.

COUNT IV
(PATENT INFRINGEMENT BY DEFENDANT VIEWSONIC OF THE '641
PATENT)

32. The allegations in the foregoing paragraphs of this Complaint are incorporated by reference herein as if restated and set forth in full.

33. Defendant ViewSonic infringed, actively induced and/or contributed to the infringement of the '641 Patent by at least making, using, causing to be used, offering to sell, causing to be offered for sale, selling, causing to be sold, importing, and/or causing to be imported products that infringe one or more claims of the '641 Patent in this judicial district and elsewhere in the United States. Such infringing products include at least the product depicted in Exhibit D, which is identified as a ViewSonic VX900 monitor, offered for sale and sold by at least Outpost.com to a customer in Delaware; as well as products that infringe the '641 Patent that are not yet identified.

34. The infringing products that are made, used, caused to be used, sold, caused to be sold, offered for sale, caused to be offered for sale, imported, and/or caused to be imported by Defendant ViewSonic meet each and every limitation of at least one claim of the '641 Patent, either literally or equivalently.

35. LPL has been and will continue to be injured by Defendant ViewSonic's past and continuing infringement of the '641 Patent and is without adequate remedy at law.

36. Defendant ViewSonic, upon information and belief, has infringed and is infringing the '641 Patent with knowledge of LPL's patent rights and without a reasonable basis for believing its conduct is lawful. Defendant ViewSonic's infringement has been and continues to be willful and deliberate, and will continue unless enjoined by

the Court, making this an exceptional case and entitling LPL to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff LPL prays for judgment as follows:

- A. That Tatung, Tatung America, and ViewSonic have infringed the Patents-in-Suit;
- B. That Tatung's, Tatung America's, and ViewSonic's infringement of the Patents-in-Suit has been willful;
- C. That Tatung, Tatung America, and ViewSonic and their parents, subsidiaries, affiliates, successors, predecessors, assigns, and the officers, directors, agents, servants and employees of each of the foregoing, and those persons acting in concert or participation with any of them, are preliminarily and permanently enjoined and restrained from using, making, importing, offering for sale and/or selling any product that infringes, or induces or contributes to the infringement of the Patents-in-Suit, prior to the expiration of the Patents-in-Suit, including any extensions;
- D. That Tatung, Tatung America, and ViewSonic and their parents, subsidiaries, affiliates, successors, predecessors, assigns, and the officers, directors, agents, servants and employees of each of the foregoing, and those persons acting in concert or participation with any of them deliver to LPL all products that infringe, or induce or contribute

to the infringement of the Patents-in-Suit for destruction at LPL's option;

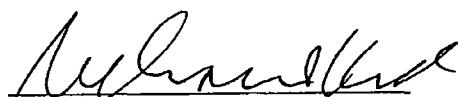
- E. That LPL be awarded monetary relief adequate to compensate LPL for Tatung's, Tatung America's, and ViewSonic's acts of infringement of the Patents-in-Suit within the United States prior to the expiration of the Patents-in-Suit, including any extensions;
- F. That any monetary relief awarded to LPL regarding the infringement of the Patents-in-Suit by Defendants be trebled due to the willful nature of Tatung's, Tatung America's, and ViewSonic's infringement of the Patents-in-Suit;
- G. That any monetary relief awarded to LPL be awarded with prejudgment interest;
- H. That this is an exceptional case and that LPL be awarded the attorneys' fees, costs and expenses that it incurs prosecuting this action; and
- I. That LPL be awarded such other and further relief as this Court deems just and proper.

JURY DEMAND

Plaintiff demands a trial by jury of any and all issues triable of right by a jury.

May 27, 2004

MORRIS, JAMES, HITCHENS & WILLIAMS LLP



Richard D. Kirk (#922)
Patrick W. Straub (#4005)
222 Delaware Avenue
P.O. Box 2306
Wilmington, DE 19899
(302) 888-6800
Attorneys for Plaintiff LG. Philips LCD Co., Ltd.

OF COUNSEL:

Daniel G. Jarcho
Matthew T. Bailey
Lora A. Brzezynski
Cass W. Christenson
Andrew J. Park
McKenna Long & Aldridge LLP
1900 K Street, N.W.
Washington, D.C. 20006
(202) 496-7500



US006498718B1

(12) United States Patent
Kim et al.

(10) Patent No.: US 6,498,718 B1
(45) Date of Patent: Dec. 24, 2002

(54) PORTABLE COMPUTER AND METHOD FOR MOUNTING A FLAT PANEL DISPLAY DEVICE THEREON	GB	2 319 110 A	5/1998
	JP	60-91386	5/1985
	JP	4-134900	5/1992
	JP	8-28545	2/1996
(75) Inventors: Jong Hwan Kim, Kyunggi-Do (KR); Young Woo Cho, Kyunggi-Do (KR)	JP	8-76886	3/1996
	JP	8/211964	8/1996
	JP	9-91059	4/1997
(73) Assignee: LG. Philips LCD Co., Ltd., Seoul (KR)	JP	10-133181	5/1998
	JP	11-6998	1/1999
	JP	11-85319	3/1999
	KR	96-11617	4/1996
(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.	KR	006055	1/1997
	KR	027408	7/1998
	KR	026831	8/1998

(21) Appl. No.: 09/444,376

(22) Filed: Nov. 22, 1999

Related U.S. Application Data

(63) Continuation of application No. 09/285,338, filed on Apr. 2, 1999.

Foreign Application Priority DataOct. 23, 1998 (KR) 98-44475
Oct. 27, 1998 (KR) 98-44973(51) Int. Cl.⁷ G06F 1/16
(52) U.S. Cl. 361/680; 361/683; 361/686; 349/58

(58) Field of Search 361/679-681, 361/683, 686; 349/58

References Cited**U.S. PATENT DOCUMENTS**

- 5,268,816 A * 12/1993 Abell, Jr. et al. 361/729
5,379,182 A 1/1995 Fujimori et al. 361/681
5,423,605 A 6/1995 Liu
5,835,139 A * 11/1998 Yun et al. 349/58
5,946,061 A * 8/1999 Kurihara et al. 349/58

FOREIGN PATENT DOCUMENTS

GB 2170035 A * 7/1986 G09F/7/18

OTHER PUBLICATIONS

Korean Office Action dated Jan. 31, 2001 (with English translation).

Japanese Office Action dated Feb. 13, 2002 (with English translation).

GB Office Action dated May 31, 2000.

* cited by examiner

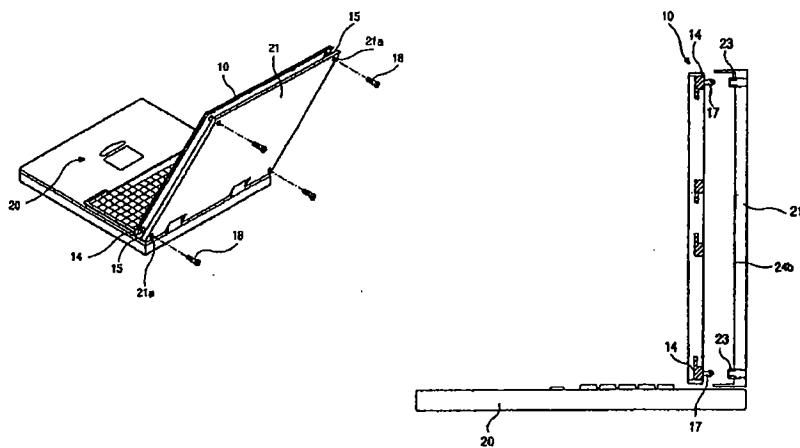
Primary Examiner—Lynn D. Feild

Assistant Examiner—Yean Hsi Chang

(74) Attorney, Agent, or Firm—McKenna Long & Aldridge LLP

(57) ABSTRACT

A portable computer including a housing having first and second sections, the first section having an information input device and the second section having a case having a first fastening element; a display panel including a second fastening element at a rear surface of the panel, the case and the display panel being attached through the first and second fastening elements; a hinge coupling the first and the second sections to each other; and a display panel support member having a third fastening element, the display panel support member being attached to the display panel through the third fastening element.

41 Claims, 16 Drawing Sheets



US006501641B1

(12) **United States Patent**
Kim et al.

(10) Patent No.: **US 6,501,641 B1**
(45) Date of Patent: **Dec. 31, 2002**

(54) **PORTABLE COMPUTER HAVING A FLAT PANEL DISPLAY DEVICE**

JP	8-28545	2/1996
JP	8-76886	3/1996
JP	8-211964	8/1996
JP	9-91059	4/1997
JP	10-133181	5/1998
JP	11-6998	1/1999
JP	11-85319	3/1999
KR	96-11617	4/1996
KR	006055	1/1997
KR	027408	7/1998
KR	026831	8/1998

(75) Inventors: Jong Hwan Kim; Young Woo Cho,
both of Kyunggi-Do (KR)

(73) Assignee: LG. Philips LCD Co. Ltd., Seoul (KR)

(*) Notice: Subject to any disclaimer, the term of this
patent is extended or adjusted under 35
U.S.C. 154(b) by 0 days.

(21) Appl. No.: 09/285,338

(22) Filed: Apr. 2, 1999

(30) Foreign Application Priority Data

Oct. 23, 1998 (KR) 98-44475
Oct. 27, 1998 (KR) 98-44973

(51) Int. Cl.⁷ H05K 7/16

(52) U.S. Cl. 361/681; 361/681; 361/683;
361/729; 349/58

(58) Field of Search 361/679-681,
361/683, 686; 349/58

(56) References Cited

U.S. PATENT DOCUMENTS

5,268,816 A * 12/1993 Abell, Jr. et al. 361/729
5,379,182 A 1/1995 Fujimori et al. 361/681
5,423,605 A * 6/1995 Liu 312/265.6
5,835,139 A * 11/1998 Yun et al. 349/58
5,946,061 A * 8/1999 Kurihara et al. 349/58

FOREIGN PATENT DOCUMENTS

GB	2 170 035 A	*	7/1986 G09F/7/18
GB	2 319 110		S/1998	
GB	2 319 110 A		S/1998	
JP	60-91386		5/1985	
JP	4-134900		S/1992	

Korean Office Action dated Jan. 31, 2001 (with English translation).

Japanese Office Action dated Feb. 13, 2002 (with English translation).

GB Office Action dated May 31, 2000.

* cited by examiner

Primary Examiner—Darren Schuberg

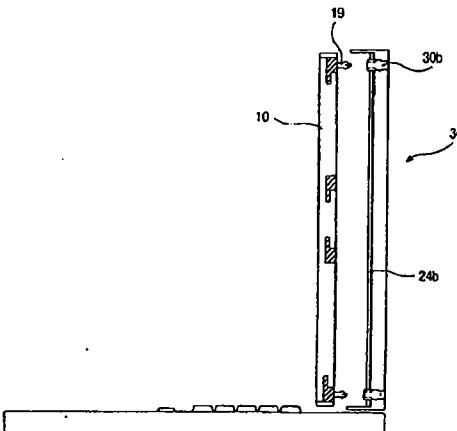
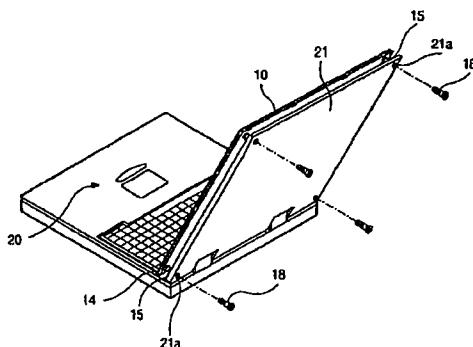
Assistant Examiner—Yean-Hsi Chang

(74) Attorney, Agent, or Firm—McKenna Long & Aldridge LLP

(57) ABSTRACT

A portable computer including a housing having first and second sections, the first section having an information input device and the second section having a case having a first fastening element; a display panel including a second fastening element at a rear surface of the panel, the case and the display panel being attached through the first and second fastening elements; a hinge coupling the first and the second sections to each other; and a display panel support member having a third fastening element, the display panel support member being attached to the display panel through the third fastening

56 Claims, 16 Drawing Sheets



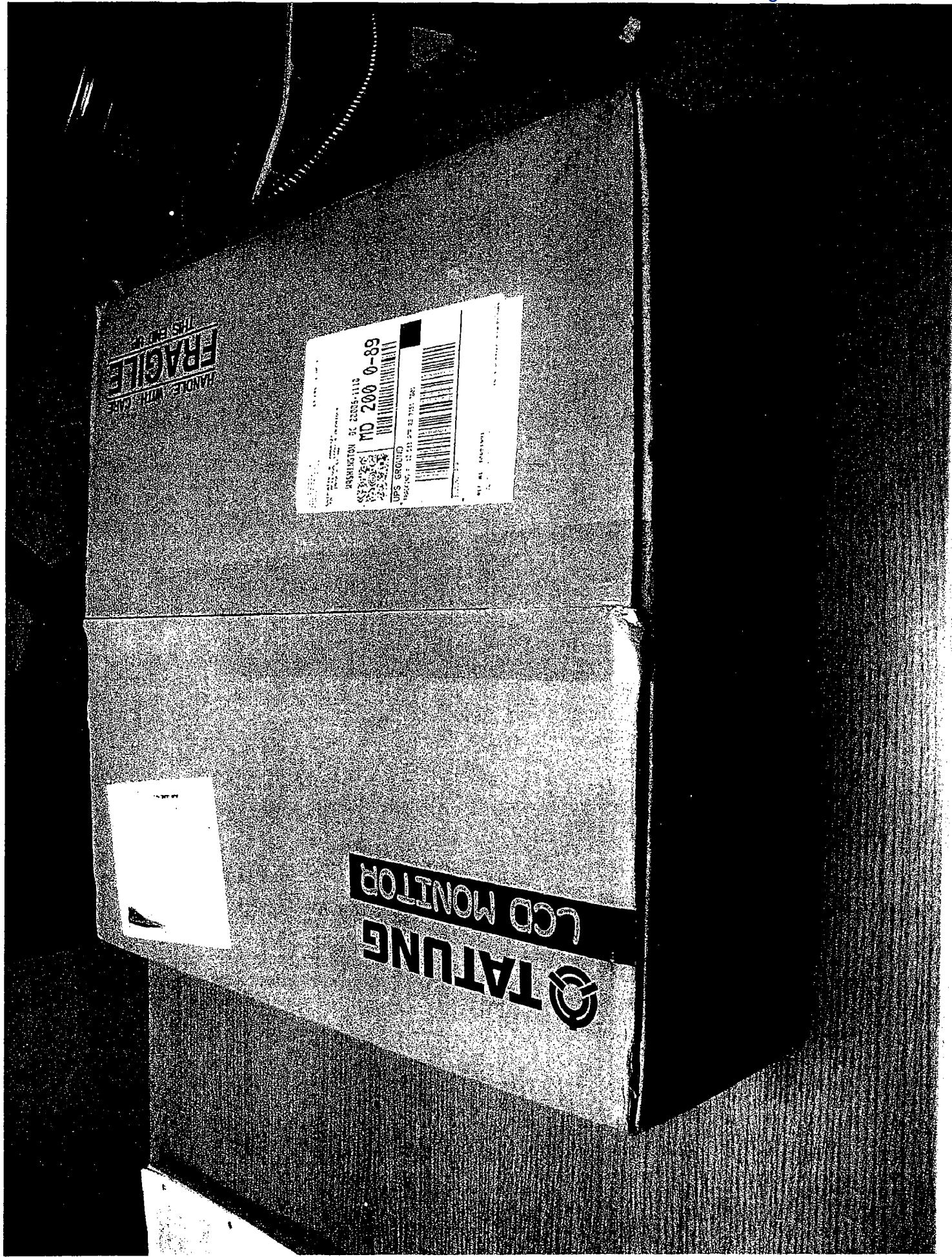


EXHIBIT J

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

FILED
CLERK U.S. DISTRICT COURT
DISTRICT OF DELAWARE

2005 MAY 13 PM 3:45

LG.PHILIPS LCD CO., LTD.,

Plaintiff,

v.

TATUNG COMPANY;
TATUNG COMPANY OF AMERICA, INC.;
CHUNGHWA PICTURE TUBES, LTD.;
AND VIEWSONIC CORPORATION,

Defendants.

Civil Action No. 05 - 292

DEMAND FOR TRIAL BY JURY

COMPLAINT FOR PATENT INFRINGEMENT

Plaintiff LG.Philips LCD Co., Ltd. ("LPL") for its Complaint against Defendants Tatung Company; Tatung Company of America, Inc.; Chunghwa Picture Tubes, Ltd.; and ViewSonic Corporation (collectively the "Defendants") for preliminary and permanent injunctive and declaratory relief and for damages, including treble or multiple damages, for patent infringement, states and alleges as follows:

NATURE OF THE ACTION

1. LPL is the owner of United States Patent No. 6,738,121 ("the '121 Patent") and United States Patent No. 5,019,002 ("the '002 Patent") (collectively the "Patents-in-Suit"). This is a civil action for the infringement of the Patents-in-Suit, including the willful infringement of the Patents-in-Suit by Defendants.

2. The technology at issue involves the design and manufacture of Liquid Crystal Display modules ("LCDs"), which are a type of flat panel display that are incorporated into at least LCD portable computers, LCD computer monitors and LCD televisions.

THE PARTIES

3. Plaintiff LPL is a corporation organized under the laws of the Republic of Korea, having a place of business located in Seoul, Korea.

4. Defendant Tatung Company ("Tatung") is a Taiwanese corporation, having a place of business at 22 Chungshan N Rd. Section 3, Taipei, Taiwan.

5. Defendant Tatung Company of America, Inc. ("Tatung America") is a subsidiary of Tatung. Tatung America is a California corporation, having a place of business at 2850 El Presidio Street, Long Beach, California 90810. Tatung America markets and sells Tatung's products throughout the United States.

6. Defendant Chunghwa Picture Tubes, Ltd. ("CPT") is a subsidiary and/or affiliate of Tatung. CPT is a Taiwanese corporation, having a place of business at No. 1127, Ho-ping Road, Tanan, Pahte, Taoyuan, Taiwan.

7. Defendant ViewSonic Corporation ("ViewSonic") is a Delaware Corporation, having a place of business at 381 Brea Canyon Road, Walnut, California 91789.

JURISDICTION AND VENUE

8. This action is based upon and arises under the Patent Laws of the United States, 35 U.S.C. § 100 *et seq.*, and in particular §§ 271, 281, 283, 284 and 285, and is intended to redress infringement of the Patents-in-Suit owned by LPL.

9. This Court has jurisdiction over the subject matter of this action pursuant to 28 U.S.C. §§ 1331 and 1338(a).

10. Defendants have transacted and continue to transact business in the United States and in this judicial district by: using or causing to be used; making; importing or causing to be imported; offering to sell or causing to be offered for sale; and/or selling or causing to be sold directly, through intermediaries and/or as an intermediary, a variety of products that infringe the Patents-in-Suit to customers in the United States, including customers in this judicial district, and Defendants will continue to do so unless enjoined by this Court.

11. This Court has personal jurisdiction over Tatung and CPT, and venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391 (b) and (c) and (d), and 28 U.S.C. § 1400(b), in that these Defendants are committing and are causing acts of patent infringement within the United States and within this judicial district, including the infringing acts alleged herein, both directly, through one or more intermediaries, and as an intermediary, and in that these Defendants have caused and cause injury and damages in this judicial district by acts or omissions outside of this judicial district, including but not limited to utilization of their own distribution channels established in the United States and Tatung America's distribution channels in the United States, as set forth below, to ship a variety of products that infringe the Patents-in-Suit into the United States and into this judicial district while deriving substantial revenue from services or things used or consumed within this judicial district, and will continue to do so unless enjoined by this Court.

12. This Court has personal jurisdiction over Tatung America and venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391 (b) and (c), and 28 U.S.C. § 1400(b), in that Tatung America is committing acts of patent infringement within the United States and within

this judicial district, including the infringing acts alleged herein, both directly, through one or more intermediaries, and as an intermediary. Tatung America regularly imports large quantities of Tatung LCD products into the United States for distribution throughout the United States, including in this judicial district. Tatung America is intimately involved in the distribution of infringing LCD products and is acutely aware that its products are sold throughout the United States, including in Delaware. Tatung's and Tatung America's established distribution networks consist of numerous national distributors and resellers, and Tatung and Tatung America distribute to national retailers that have stores located in Delaware. By shipping into, offering to sell in, using, or selling products that infringe the Patents-in-Suit in this judicial district, or by inducing or causing those acts to occur, Tatung America has transacted and transacts business and performs works and services in this judicial district, has contracted and contracts to supply services and things in this judicial district, has caused and causes injury and damages in this judicial district by acts and omissions in this judicial district, and has caused and causes injury and damages in this judicial district by acts or omissions outside of this judicial district while deriving substantial revenue from services or things used or consumed within this judicial district, and will continue to do so unless enjoined by this Court.

13. This Court has personal jurisdiction over ViewSonic, and venue is proper in this judicial district pursuant to 28 U.S.C. §§ 1391 (b) and (c), and 28 U.S.C. § 1400(b), in that ViewSonic is incorporated and therefore resides in Delaware for purposes of establishing venue in this district, in that ViewSonic has been doing business in Delaware, including the infringing acts alleged herein, both directly, through one or more intermediaries, and/or as an intermediary, and will continue to do so unless enjoined by this Court.

THE PATENTS-IN-SUIT

14. On May 18, 2004, the '121 Patent, entitled "Tape Carrier Package with Dummy Bending Part and Liquid Crystal Display Employing the Same," was duly and legally issued, listing LPL as assignee. A copy of the '121 Patent is attached as Exhibit A.

15. On May 28, 1991, the '002 Patent, entitled "Method of Manufacturing Flat Panel Backplanes including Electrostatic Discharge Prevention and Displays Made Thereby," was duly and legally issued, listing LPL as assignee. A copy of the '002 Patent is attached as Exhibit B.

16. LPL owns the Patents-in-Suit and possesses the right to sue and to recover for infringement of the Patents-in-Suit.

17. Defendants have been and are infringing, contributorily infringing and/or actively inducing infringement of the Patents-in-Suit because they at least use, cause to be used, make, import, cause to be imported, offer for sale, cause to be offered for sale, sell, and/or cause to be sold in this judicial district and elsewhere in the United States products that infringe the Patents-in-Suit.

FACTUAL BACKGROUND

18. LPL has invested substantial time and money in designing, developing, manufacturing and producing LCD products that incorporate the patented LCD technology.

19. LPL derives substantial benefits from the exploitation of its patented technology in the United States and abroad. LPL's interests, including, but not limited to, these benefits have been and continue to be harmed by the Defendants' infringement of the Patents-in-Suit.

20. The Defendants at least use, cause to be used, make, import, cause to be imported, offer for sale, cause to be offered for sale, sell, and/or cause to be sold in the United States and in

this judicial district LCDs and/or LCD products and other electronic devices that are encompassed by and/or made by the methods claimed in the Patents-in-Suit.

21. The Defendants have actively induced and continue to actively induce the infringement of the Patents-in-Suit in the United States and in this judicial district. Defendants have engaged in active inducement by, *inter alia*, publishing and releasing engineering specifications in English for their infringing monitors and/or televisions; providing technical assistance to their resellers and customers in the United States; and marketing and distributing their infringing monitors and/or televisions through established distribution channels with knowledge of their intended sale and use in the United States, including in this judicial district.

COUNT I

**(PATENT INFRINGEMENT BY DEFENDANTS TATUNG,
TATUNG AMERICA, CPT, AND VIEWSONIC OF THE '121 PATENT)**

22. The allegations in the foregoing paragraphs of this Complaint are incorporated by reference herein as if restated and set forth in full.

23. Defendants have infringed, actively induced and/or contributed to the infringement of the '121 Patent by making, using, causing to be used, offering to sell, causing to be offered for sale, selling, causing to be sold, importing, and/or causing to be imported products that infringe one or more claims of the '121 Patent in this judicial district and elsewhere in the United States. Such infringing products include at least the product identified as a Tatung monitor L17AMTN offered for sale and sold by at least Best Buy to a customer in Delaware; and include at least the product identified as a ViewSonic monitor ES710 offered for sale and sold by at least CompUSA to a customer in Delaware; as well as products that infringe the '121 Patent that are not yet identified.

24. The infringing products that are made, used, caused to be used, sold, caused to be sold, offered for sale, caused to be offered for sale, imported, and/or caused to be imported by Defendants meet each and every limitation of at least one claim of the '121 Patent, either literally or equivalently.

25. LPL has been and will continue to be injured by Defendants' past and continuing infringement of the '121 Patent and is without adequate remedy at law.

26. Defendants have, upon information and belief, infringed and are infringing the '121 Patent with knowledge of LPL's patent rights and without a reasonable basis for believing their conduct is lawful. Defendants' infringement has been and continues to be willful and deliberate, and will continue unless enjoined by this Court, making this an exceptional case and entitling LPL to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285.

COUNT II

**(PATENT INFRINGEMENT BY DEFENDANTS TATUNG,
TATUNG AMERICA, CPT, AND VIEWSONIC OF THE '002 PATENT)**

27. The allegations in the foregoing paragraphs of this Complaint are incorporated by reference herein as if restated and set forth in full.

28. Defendants have infringed, actively induced and/or contributed to the infringement of the '002 Patent by making, using, causing to be used, offering to sell, causing to be offered for sale, selling, causing to be sold, importing, and/or causing to be imported products that are made by a method that infringe one or more claims of the '002 Patent in this judicial district and elsewhere in the United States. Such infringing products include at least the product identified as a Tatung monitor L17AMTN offered for sale and sold by at least Best Buy to a

customer in Delaware; and include at least the product identified as a ViewSonic monitor ES710 offered for sale and sold by at least CompUSA to a customer in Delaware; as well as products that infringe the '121 Patent that are not yet identified.

29. The products made by the infringing method that are used, caused to be used, sold, caused to be sold, offered for sale, caused to be offered for sale, imported, and/or caused to be imported by Defendants meet each and every limitation of at least one claim of the '002 Patent, either literally or equivalently.

30. LPL has been and will continue to be injured by Defendants' past and continuing infringement of the '002 Patent and is without adequate remedy at law.

31. Defendants have, upon information and belief, infringed and are infringing the '002 Patent with knowledge of LPL's patent rights and without a reasonable basis for believing their conduct is lawful. Defendants' infringement has been and continues to be willful and deliberate, and will continue unless enjoined by this Court, making this an exceptional case and entitling LPL to increased damages and reasonable attorneys' fees pursuant to 35 U.S.C. §§ 284 and 285.

PRAYER FOR RELIEF

WHEREFORE, Plaintiff LPL prays for judgment as follows:

- A. That Tatung, Tatung America, CPT, and ViewSonic have infringed the Patents-in-Suit;
- B. That Tatung's, Tatung America's, CPT's, and ViewSonic's infringement of the Patents-in-Suit has been willful.

C. That Tatung, Tatung America, CPT, and ViewSonic and their parents, subsidiaries, affiliates, successors, predecessors, assigns, and the officers, directors, agents, servants and employees of each of the foregoing, and those persons acting in concert or participation with any of them, are preliminarily and permanently enjoined and restrained from continued infringement, including but not limited to using, making, importing, offering for sale and/or selling products that infringe, and from contributory infringement and from inducing the infringement of, the Patents-in-Suit, prior to the expiration of the Patents-in-Suit, including any extensions;

D. That Tatung, Tatung America, CPT, and ViewSonic and their parents, subsidiaries, affiliates, successors, predecessors, assigns, and the officers, directors, agents, servants and employees of each of the foregoing, and those persons acting in concert or participation with any of them deliver to LPL all products that infringe, or induce or contribute to the infringement of the Patents-in-Suit for destruction at LPL's option;

E. That LPL be awarded monetary relief adequate to compensate LPL for Tatung's, Tatung America's, CPT's, and ViewSonic's acts of infringement of the Patents-in-Suit within the United States prior to the expiration of the Patents-in-Suit, including any extensions;

F. That any monetary relief awarded to LPL regarding the infringement of the Patents-in-Suit by Defendants be trebled due to the willful nature of Tatung's, Tatung America's, CPT's, and ViewSonic's infringement of the Patents-in-Suit;

G. That any monetary relief awarded to LPL be awarded with prejudgment interest;

H. That this is an exceptional case and that LPL be awarded the attorneys' fees, costs and expenses that it incurs prosecuting this action; and

I. That LPL be awarded such other and further relief as this Court deems just and proper.

JURY DEMAND

Plaintiff demands a trial by jury of any and all issues triable of right by a jury.

THE BAYARD FIRM



Richard D. Kirk (Bar I.D. 922)
222 Delaware Avenue, Suite 900
P.O. Box 25130
Wilmington, DE 19899
(302) 429-4208
rkirk@bayardfirm.com
Attorneys for Plaintiff LG.Philips LCD Co., Ltd.

OF COUNSEL:

Gaspare J. Bono
Matthew T. Bailey
Andrew J. Park
Adrian Mollo
McKenna Long & Aldridge LLP
1900 K Street, NW
Washington, D.C. 20006
(202) 496-7500

May 13, 2005

EXHIBIT A

EXHIBIT A

EXHIBIT A



(12) United States Patent
Yun et al.

(10) Patent No.: US 6,738,121 B2
(45) Date of Patent: May 18, 2004

(54) TAPE CARRIER PACKAGE WITH DUMMY BENDING PART AND LIQUID CRYSTAL DISPLAY EMPLOYING THE SAME

4,474,432 A * 10/1984 Takamatsu et al. 349/150
5,362,547 A * 11/1994 Yamazaki 428/167
5,398,128 A * 3/1995 Tajima et al. 349/150
5,528,403 A * 6/1996 Kawaguchi et al. 349/149
5,668,700 A * 9/1997 Tagusa et al. 361/779
5,670,994 A * 9/1997 Kawaguchi et al. 345/206
6,104,464 A * 8/2000 Adachi et al. 349/150

(75) Inventors: Sai Chang Yun, Kumi-shi (KR); Eun Yeong An, Kumi-shi (KR)

U.S. Patent

May 18, 2004

Sheet 1 of 7

US 6,738,121 B2

FIG. 1A
CONVENTIONAL ART

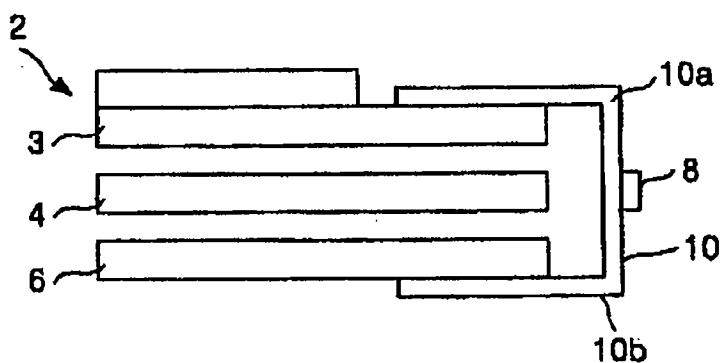
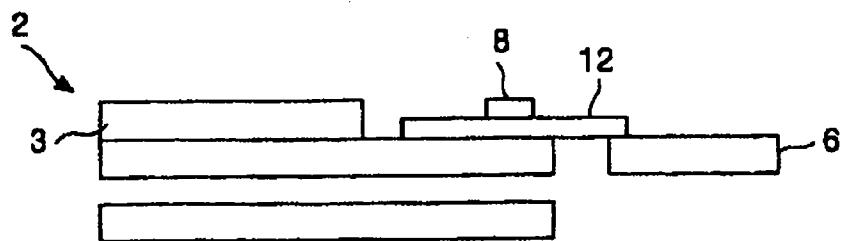


FIG. 1B
CONVENTIONAL ART



U.S. Patent

May 18, 2004

Sheet 2 of 7

US 6,738,121 B2

FIG. 2
CONVENTIONAL ART

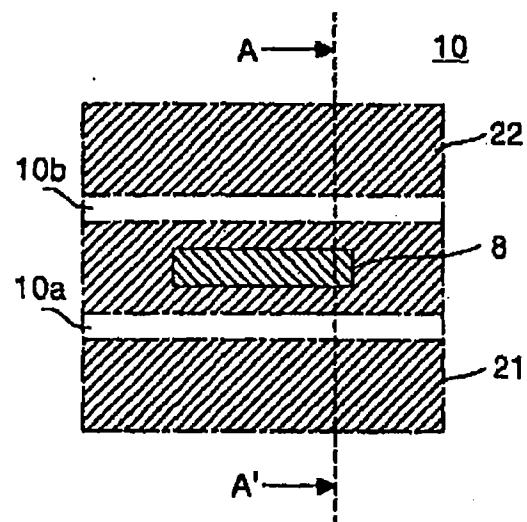
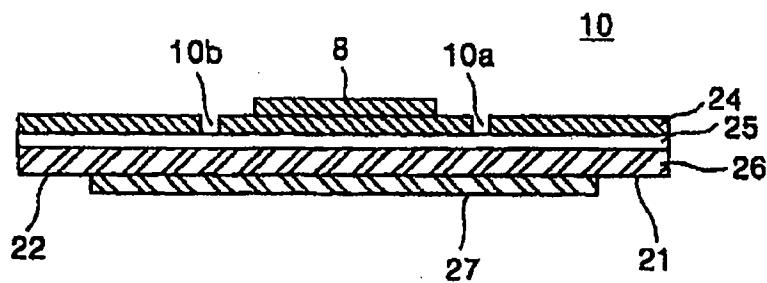


FIG. 3
CONVENTIONAL ART



U.S. Patent

May 18, 2004

Sheet 3 of 7

US 6,738,121 B2

FIG. 4
CONVENTIONAL ART

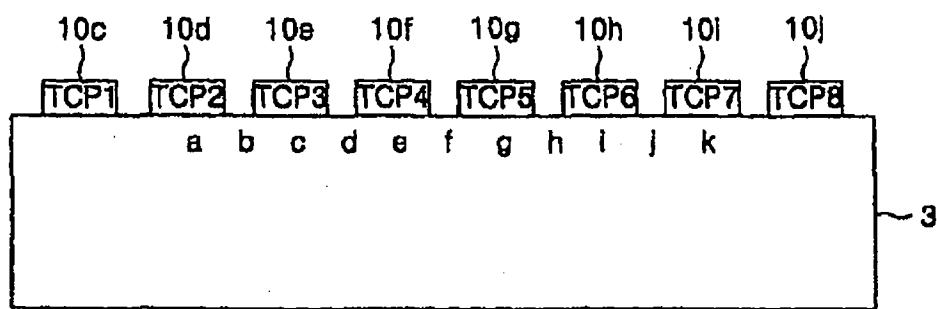
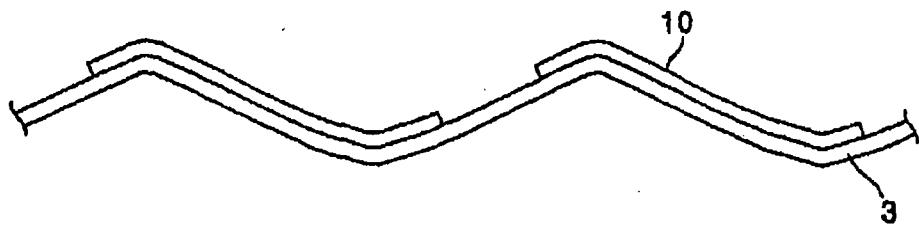


FIG. 5
CONVENTIONAL ART



U.S. Patent

May 18, 2004

Sheet 4 of 7

US 6,738,121 B2

FIG. 6
CONVENTIONAL ART

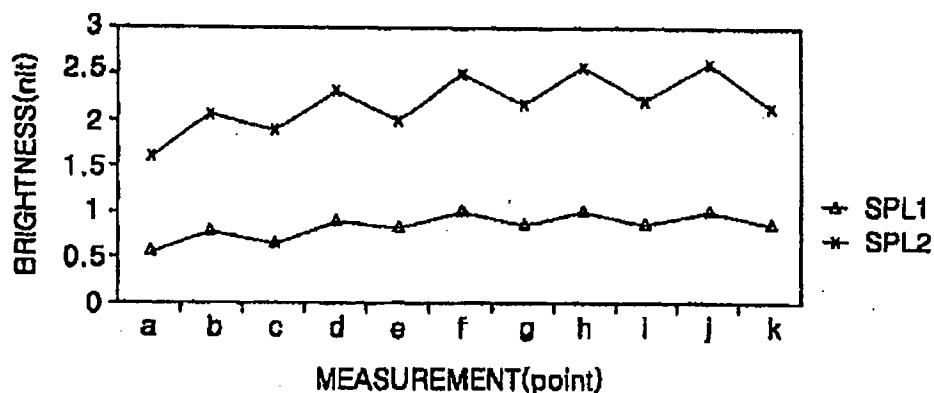
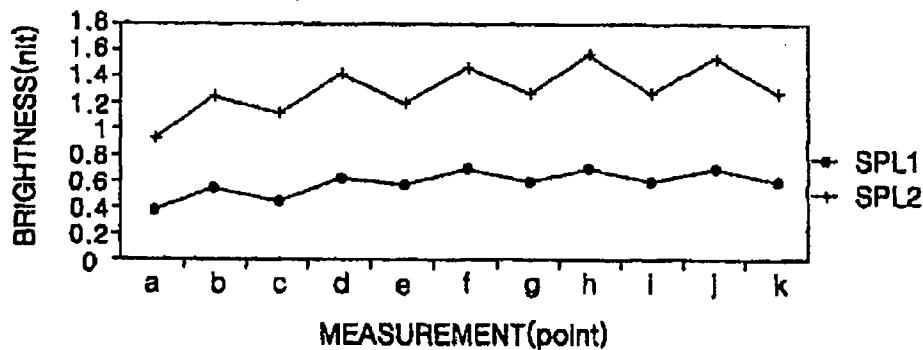


FIG. 7



U.S. Patent

May 18, 2004

Sheet 5 of 7

US 6,738,121 B2

FIG. 8

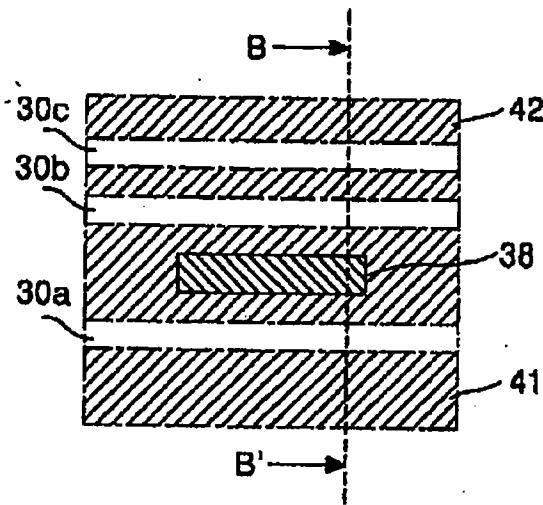
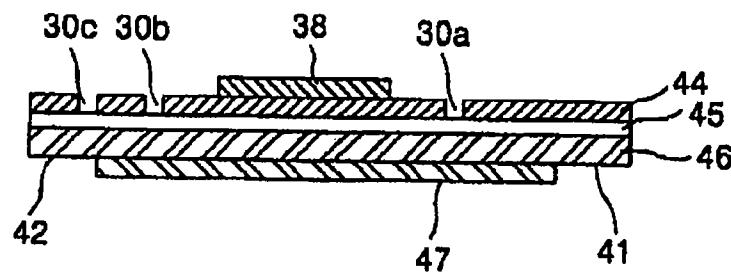


FIG. 9



U.S. Patent

May 18, 2004

Sheet 6 of 7

US 6,738,121 B2

FIG. 10

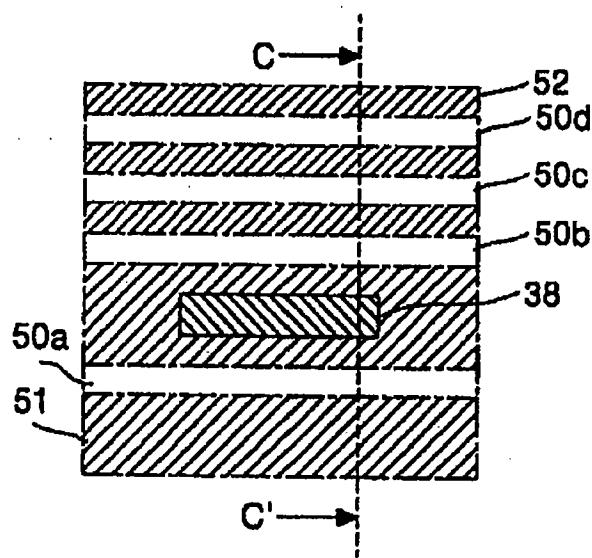
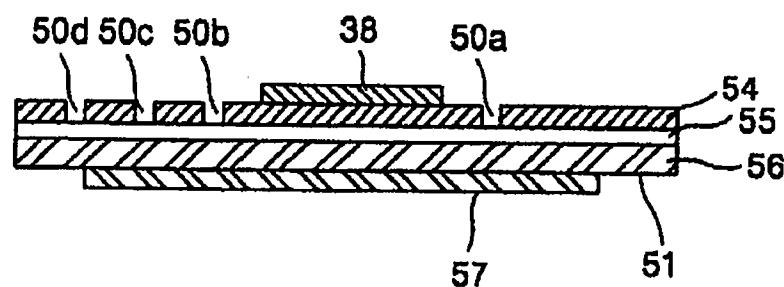


FIG. 11



U.S. Patent

May 18, 2004

Sheet 7 of 7

US 6,738,121 B2

FIG. 12

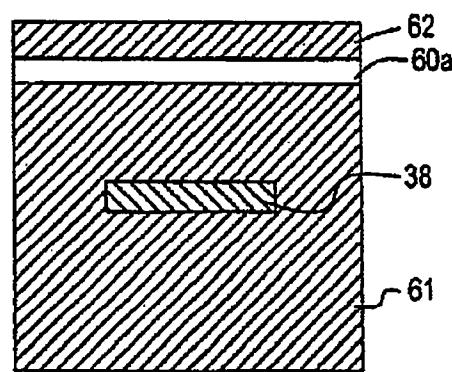
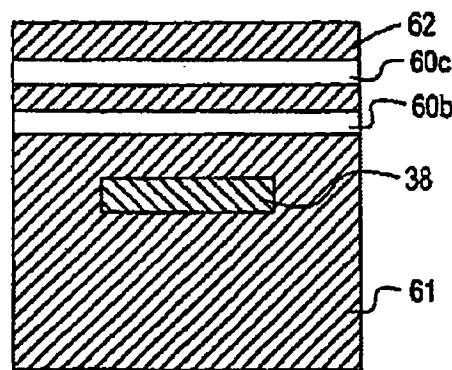


FIG. 13



US 6,738,121 B2

1

**TAPE CARRIER PACKAGE WITH DUMMY
BENDING PART AND LIQUID CRYSTAL
DISPLAY EMPLOYING THE SAME**

This application claims the benefit of Korean Patent Application No. P2000-17026, filed on Mar. 31, 2000, which is hereby incorporated by reference for all purposes as if fully set forth herein.

2

by bending a tape carrier package (TCP) 10 mounted with a D-IC 8 and connected between a lower glass substrate 3 of the liquid crystal panel 2 and the PCB 6. A backlight unit 4 is positioned below the liquid crystal display panel 2. As shown in FIG. 2 and FIG. 3, an adhesive 25 is coated on a base film 24 of the TCP 10, and a lead part 26 is adhered thereon. The lead part 26 made from copper (Cu) is connected to pins of the D-IC 8. On the lead 26 is coated a solder resistor 27 responsible for providing an insulator. At the upper end and the lower end of the base film 24, an input pad part 21 and an output pad part 22 extending from each lead of the lead part 26 are provided. The input pad part 21 is connected to an output signal wiring of the PCB while the output pad part 22 is connected to the gate line or the data line formed on a lower glass substrate 3. Bending parts 10a and 10b are provided between the input pad part 21 and the D-IC 8 and between the output pad part 22 and the D-IC 8, respectively. The base film 24 is removed from the bending parts 10a and 10b. The TCP 10 is easily bent with the aid of these bending parts 10a and 10b.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to an apparatus for mounting an integrated circuit on a liquid crystal display, and more particularly to a tape carrier package with a dummy bending part that is capable of reducing a difference in brightness in a screen. Also, the present invention is directed to a liquid crystal display that is capable of reducing a difference in brightness, using said tape carrier package.

2. Description of the Related Art

Generally, a liquid crystal display with an active matrix driving system uses thin film transistors (TFTs) as switching devices to display a natural moving picture. Since such a liquid crystal display can be made into a smaller-size device than the Brown tube, it is commercially available for a monitor such as a portable television or a lap-top personal computer, etc.

The active matrix liquid crystal display displays a picture corresponding to video signals, such as television signals, on a pixel (or picture element) matrix having pixels arranged at each intersection between gate lines and data lines. Each pixel includes a liquid crystal cell for controlling a transmitted light quantity in accordance with a voltage level of a data signal from a data line. The TFT is installed at an intersection between the gate line and the data line to switch a data signal to be transferred to the liquid crystal cell in response to a scanning signal (i.e., a gate pulse) from the gate line.

Such a liquid crystal display requires a number of driving integrated circuits, each hereinafter referred to as a "D-IC", connected to the data lines and the gate lines to apply data signals and scanning signals to the data lines and the gate lines, respectively. The D-ICs are installed between the printed circuit board (PCB) and the liquid crystal panel to apply the data signals and the scanning signals to the data lines and the gate lines of the liquid crystal panel in response to a control signal applied from the PCB. A tape automated bonding (TAB) system has generally been used as a mounting method of the D-ICs that is capable of widening an effective area of the panel and has a relatively simple mounting process.

The TAB method may be divided into a bending type as shown in FIG. 1A, and a flat type as shown in FIG. 1B. The bending-type TAB system as shown in FIG. 1A has been used for a mounting of source and gate drivers of a monitor or a notebook computer. In the bending-type TAB system, a PCB 6 is folded to the rear side of a liquid crystal panel 2

The flat-type TAB system as shown in FIG. 1B is mainly used to mount gate drivers of a 10.4" or 12.1" small-size notebook computer or monitor. In the flat-type TAB system, a TCP 12 mounted with a D-IC 8 and connected between a lower glass substrate 3 of a liquid crystal panel 2 and a PCB 6 is arranged in parallel to the liquid crystal panel 2. Thus, since the TCP 12 connected between the liquid crystal panel 2 and the PCB 6 is not bent, no bending part is formed.

However, the conventional TAB system has a problem in that a brightness difference is generated between an area where the TCP 10 or 12 is adhered onto the liquid crystal panel 2 and an area where the TCP 10 or 12 is not adhered onto the liquid crystal panel 2. More specifically, as shown in FIG. 4, the TCPs 10c to 10j are adhered to the edge of the lower glass substrate 3 at a desired spacing, having an anisotropic conductive film (ACF) therebetween under a high temperature and high pressure atmosphere. At this time, the TCPs 10c to 10j are expanded by heat and then contracted while the heat applied thereto is lowered to a normal temperature after their adhesion. A stress is applied to the lower glass substrate 3 by such TCPs 10c to 10j. As a result, since the lower glass substrate 3 is deformed into a periodical land/groove shape as shown in FIG. 5, a cell gap between an upper glass substrate (not shown) and the lower glass substrate 3 has a periodical thickness difference. When an experiment using the gray patterns of '7' and '3' was made with respect to two samples of a 12.1" liquid crystal panel as shown in FIG. 4 having SVGA resolution (i.e., 800x600) and a brightness of 300 nit, a brightness difference is periodically generated. As a result of this experiment, a brightness difference between the adhesive areas a, c, e, g, i and k and the non-adhesive areas b, d, f, h and i of the TCPs 10c to 10j having a difference in the cell gap is indicated in the following Table 1, and in FIGS. 6 and 7. As a brightness measuring device, a 'PR800' model optical measuring-set is used for sensing a brightness level in accordance with a received light amount.

TABLE 1

Sample	Point	Measuring										
		a	b	c	d	e	f	g	h	i	j	k
Sample 1	7-Gray	0.577	0.74	0.679	0.879	0.818	0.956	0.801	0.959	0.829	0.957	0.794
	3-Gray	0.44	0.538	0.491	0.642	0.577	0.703	0.584	0.707	0.604	0.712	0.596

US 6,738,121 B2

3

4

TABLE 1-continued

Measuring		a	b	c	d	e	f	g	h	i	j	k
Sample	Point											
Sample 2	7-Gray	1.628	2.075	1.892	2.293	1.974	2.165	2.165	2.563	2.217	2.587	2.132
	3-Gray	1.925	1.233	1.089	1.369	1.129	1.464	1.258	1.564	1.291	1.549	1.245

As seen from Table 1, a brightness difference is generated between the adhesive areas a, c, e, g, i and k and the non-adhesive areas b, d, f, h and l of the TCPs 10c to 10j. In two samples, average brightness differences in the 7 gray pattern and the 3 gray pattern have 0.2691 and 0.1957, respectively. Since a stress applied to the lower glass substrate 3 by the TCPs 10z to 10h becomes larger as the TCPs 10c to 10j become longer or thicker, a brightness difference between the adhesive areas a, c, e, g, i and k and the non-adhesive areas b, d, f, h and l of the TCPs 10c to 10j becomes larger. Therefore, a strategy capable of reducing a brightness difference caused by the TCPs 10c to 10j is required to improve a display quality of the liquid crystal display.

FIG. 6 is a characteristic diagram of a brightness level detected from the liquid crystal panel shown in FIG. 4 with respect to a 7-gray pattern;

FIG. 7 is a characteristic diagram of a brightness level detected from the liquid crystal panel shown in FIG. 4 with respect to a 3-gray pattern;

SUMMARY OF THE INVENTION

Accordingly, it is an object of the present invention to provide a tape carrier package with a dummy bending part that is capable of reducing a brightness difference of the screen.

A further object of the present invention is to provide a liquid crystal display that is adaptive for reducing a brightness difference of the screen.

In order to achieve these and other objects of the invention, a tape carrier package according to one aspect of the present invention includes a pad part connected to a liquid crystal panel; a base film mounted with an integrated circuit chip for applying a signal to the liquid crystal panel; and a dummy bending part for distributing a stress applied to the liquid crystal panel according to a thermal expansion of the pad part by removing the base film between the pad part and the integrated circuit chip.

A tape carrier package according another aspect of the present invention includes a base film mounted with an integrated circuit chip for applying a signal to a liquid crystal panel; a pad part extending from the integrated circuit chip to be connected to the liquid crystal panel; at least one bending part in which the base film at a portion where the tape carrier package is folded is removed; and at least one dummy bending part, in which a desired base film at a portion where the tape carrier package is not folded is removed, for reducing a thermal expansion force and a thermal contraction force of the base film parallel to the longitudinal direction of the integrated circuit chip.

A liquid crystal display device according to still another aspect of the present invention includes a liquid crystal panel; a tape carrier package connected to the liquid crystal panel; a base film mounted with an integrated circuit chip for applying a signal to the liquid crystal panel; at least one bending part in which the base film at a portion where the

tape carrier package is folded is removed; a dummy bending part, in which the base film is removed in a direction perpendicular to terminals of the pad part, for reducing a thermal expansion force and a thermal contraction force generated at the time of thermal-pressing the pad onto the liquid crystal panel; and a printed circuit board connected to an input pad part of the tape carrier package.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other objects of the invention will be apparent from the following detailed description of the embodiments of the present invention with reference to the accompanying drawings, in which:

FIG. 1A is a sectional view showing the conventional bending-type tape automated bonding (TAB) system;

FIG. 1B is a sectional view showing the conventional flat-type tape automated bonding (TAB) system;

FIG. 2 is a plan view showing the structure of the tape carrier package in FIG. 1A;

FIG. 3 is a sectional view of the tape carrier package taken along a line A-A' in FIG. 2;

FIG. 4 is a plan view showing the structure of a liquid crystal panel to which tape carrier packages used as a sample for brightness measurement are attached;

FIG. 5 depicts a deformation of the lower substrate glass substrate caused by the tape carrier package;

FIG. 6 is a characteristic diagram of a brightness level detected from the liquid crystal panel shown in FIG. 4 with respect to a 7-gray pattern;

FIG. 7 is a characteristic diagram of a brightness level detected from the liquid crystal panel shown in FIG. 4 with respect to a 3-gray pattern;

FIG. 8 is a plan view showing the structure of a tape carrier package according to a first embodiment of the present invention;

FIG. 9 is a sectional view of the tape carrier package taken along line B-B' in FIG. 8;

FIG. 10 is a plan view showing the structure of a tape carrier package according to a second embodiment of the present invention;

FIG. 11 is a sectional view of the tape carrier package taken along line C-C' in FIG. 10;

FIG. 12 is a plan view showing the structure of a tape carrier package according to a third embodiment of the present invention; and

FIG. 13 is a plan view showing the structure of a tape carrier package according to a fourth embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to FIG. 8 and FIG. 9, there is shown a tape carrier package (TCP) according to a first embodiment of the present invention, which is applicable to the bending-type

US 6,738,121 B2

5

TAB system. The TCP includes a D-IC 38 mounted on a base film 44, a first bending part 30a provided between an input pad part 41 and the D-IC 38, and a second bending part 30b and a dummy bending part 30c provided between an output pad part 42 and the D-IC 38 in parallel. The D-IC 38 plays a role to apply scanning signals, or data, to gate lines or data lines of a liquid crystal panel 2. Output pins of the D-IC 38 are connected to a lead part 46 adhered onto the base film 44 by means of an adhesive 45.

The lead part 46 is coated with a solder resistor 47 responsible for providing an insulator. At the input pad part 41 are formed pads extending from the lead part 46 to be connected to an output signal wiring of a PCB 6. Between the input pad part 41 and the D-IC 38 is provided the first bending part 30a in which the base film 44 is removed. The TCP between the PCB 6 and the D-IC 38 is easily bent by the first bending part 30a. At the output pad part 42 are provided pads extending from the lead part 46 to be connected to pads formed at the edge of the lower glass substrate 3. Between the output pad part 42 and the D-IC 38 is provided the second bending part 30b and the dummy bending part 30c in which the base film 44 are removed. The TCP between the liquid crystal panel 2 and the D-IC 38 is easily bent by the second bending part 30b. The dummy bending part 30c reduces the TCP area to which heat is applied at the time of adhering the TCP to the lower glass substrate. Accordingly, since the amount of thermal expansion of the TCP is reduced, the stress applied to the lower glass substrate 3 by the TCP is distributed and thus reduced.

Referring to FIG. 10 and FIG. 11, there is shown a tape carrier package (TCP) according to a second embodiment of the present invention, which is applicable to the bending-type TAB system. The TCP includes a D-IC 38 mounted on a base film 54, a first bending part 50a provided between an input pad part 51 and the D-IC 38, and a second bending part 50b, a first dummy bending part 50c and a second dummy bending part 50d provided between an output pad part 52 and the D-IC 38 in parallel to each other. At the input pad part 51 are formed pads extending from the lead part 56 to be connected to an output signal wiring of a PCB 6. Between the input pad part 51 and the D-IC 38 is provided the first bending part 50a in which the base film 54 is removed. The TCP between the PCB 6 and the D-IC 38 is easily bent with the aid of the first bending part 50a. At the output pad part 52 are provided pads extending from the lead part 56 to be connected to pads formed at the edge of the lower glass substrate 3. Between the output pad part 52 and the D-IC 38 are provided the second bending part 50b, the first dummy bending part 50c and the second dummy bending part 50d in which each of the base film 54 is removed. The TCP between the liquid crystal panel 2 and the D-IC 38 is easily bent by the second bending part 50b. The first and second dummy bending parts 50c and 50d play a role to distribute and reduce a stress applied to the lower glass substrate 3 by the TCP. A TCP area to which heat is applied at the time of adhering the TCP onto the lower glass substrate 3 is reduced more than in the TCP of FIG. 8, with the aid of the second dummy bending part 50d.

Referring to FIG. 12 and FIG. 13, there are shown tape carrier packages (TCPs) according to other embodiments of the present invention, which are applicable to the flat-type TAB system. Each of the TCPs includes a D-IC 38 mounted on a base film 54, and at least one of dummy bending part 60a or 60b and 60c between an output pad part 62 and the D-IC 38. At the input pad part 61 are formed pads extending from the lead part 56 to be connected to an output signal wiring of a PCB 6. At the output pad part 62 are provided

6

pads extending from the lead part 56 to be connected to pads formed at the edge of the lower glass substrate 3. Between the output pad part 62 and the D-IC 38 are provided one or two dummy bending parts 60a or 60b and 60c in which the base film 54 is removed. The dummy bending parts 60a, 60b and 60c play a role to distribute and reduce a stress applied to the lower glass substrate 3 by the TCP.

As described above, according to the present invention, the base film close to the output pads adhered onto the glass substrate of the liquid crystal panel is removed, so that a stress applied to the glass substrate by the TCP is distributed and thus reduced. As a result, the TCP with dummy bending parts according to the present invention can reduce a brightness difference of the screen. Furthermore, according to the present invention, the TCP having the dummy bending parts is adhered, so that a stress applied to the glass substrate as well as a cell gap difference between the adhesive area and the non-adhesive area of the TCP is reduced to that extent. Accordingly, the liquid crystal display according to the present invention maintains the cell gap constantly at the adhesive area and the non-adhesive area of the TCP, so that it is capable of reducing a brightness difference of the screen.

Although the present invention has been explained by the embodiments shown in the drawings described above, it should be understood to the ordinary skilled person in the art that the invention is not limited to the embodiments, but rather that various changes or modifications thereof are possible without departing from the spirit of the invention. Accordingly, the scope of the invention shall be determined only by the appended claims and their equivalents.

What is claimed is:

1. A liquid crystal display device, comprising:
a liquid crystal panel;
a printed circuit board; and
a tape carrier package connected to the liquid crystal panel and the printed circuit board, the tape carrier package comprising:
a base film mounted with an integrated circuit chip for applying a signal to the liquid crystal panel;
an output pad part extending from the integrated circuit chip and having terminals connected to the liquid crystal panel;
a dummy bending part in which a portion of the base film is removed in a direction perpendicular to the terminals of the output pad part for reducing a thermal expansion force and a thermal contraction force generated when thermal-pressing the output pad part onto the liquid crystal panel;
a first bending part in which a second portion of the base film existing at a bent position between the dummy bending part and the integrated circuit chip is removed; and
an input pad part extending from the integrated circuit chip and having terminals connected to the printed circuit board,
wherein the dummy bending part is formed at a position, close to any one of the output pad part or the input pad part, where the tape carrier package is not folded.
2. A liquid crystal display device, comprising:
a liquid crystal panel;
a printed circuit board; and
a tape carrier package connected to the liquid crystal panel and the printed circuit board, the tape carrier package comprising:
a base film mounted with an integrated circuit chip for applying a signal to the liquid crystal panel;

US 6,738,121 B2

7

- an output pad part extending from the integrated circuit chip and having terminals connected to the liquid crystal panel;
- a dummy bending part in which a portion of the base film is removed in a direction perpendicular to the terminals of the output pad part for reducing a thermal expansion force and a thermal contraction force generated when thermal-pressing the output pad part onto the liquid crystal panel;
- a first bending part in which a second portion of the base film existing at a bent position between the dummy bending part and the integrated circuit chip is removed;
- an input pad part extending from the integrated circuit chip and having terminals connected to the printed circuit board; and
- a second bending part in which a third portion of the base film existing at a bent position between the input pad part and the integrated circuit chip is removed.

3. The liquid crystal display panel of claim 2, wherein the tape carrier package further comprises a second dummy bending part in which a fourth portion of the base film is removed in a direction perpendicular to the terminals of the output pad part.

4. The liquid crystal display device of claim 1, wherein the tape carrier package further comprises a second dummy bending part in which a third portion of the base film is removed in a direction perpendicular to the terminals of the output pad part.

5. A tape carrier package, comprising:

- a pad part for connection to a liquid crystal panel;
 - a base film mounted with an integrated circuit chip for applying a signal to the liquid crystal panel; and
 - a dummy bending part for distributing a stress applied to the liquid crystal panel according to a thermal expansion of the pad part by removing a portion of the base film between the pad part and the integrated circuit chip,
- wherein the dummy bending part is formed at a position, close to the pad part, where the tape carrier package is not folded.

6. The tape carrier package according to claim 5, further comprising a first bending part in which a second portion of the base film is removed at a bent position between the dummy bending part and the integrated circuit chip.

7. The tape carrier package according to claim 6, further comprising a second pad part for connection to a printed circuit board.

8. A tape carrier package, comprising:

- a pad part for connection to a liquid crystal panel;
- a base film mounted with an integrated circuit chip for applying a signal to the liquid crystal panel;
- a dummy bending part for distributing a stress applied to the liquid crystal panel according to a thermal expansion of the pad part by removing a portion of the base film between the pad part and the integrated circuit chip;

8

- a first bending part in which a second portion of the base film is removed at a bent position between the dummy bending part and the integrated circuit chip;
 - a second pad part for connection to a printed circuit board; and
 - a second bending part in which a third portion of the base film is removed at a bent position between the second pad and the integrated circuit chip.
9. The tape carrier package according to claim 5, further comprising a second pad part for connection to a printed circuit board.
10. The tape carrier package according to claim 5, further comprising a second dummy bending part in which a second portion of the base film is removed.
11. The tape carrier package according to claim 10, further comprising a first bending part in which a third portion of the base film is removed at a bent position between the dummy bending part and the integrated circuit chip.
12. The tape carrier package according to claim 11, further comprising a second pad part for connection to a printed circuit board.
13. A tape carrier package, comprising:
- a pad part for connection to a liquid crystal panel;
 - a base film mounted with an integrated circuit chip for applying a signal to the liquid crystal panel;
 - a dummy bending part for distributing a stress applied to the liquid crystal panel according to a thermal expansion of the pad part by removing a portion of the base film between the pad part and the integrated circuit chip;
 - a second dummy bending part in which a second portion of the base film is removed;
 - a first bending part in which a third portion of the base film is removed at a bent position between the dummy bending part and the integrated circuit chip;
 - a second pad part for connection to a printed circuit board; and
 - a second bending part in which a fourth portion of the base film is removed at a bent position between the second pad and the integrated circuit chip.
14. A tape carrier package, comprising:
- a base film mounted with an integrated circuit chip for applying a signal to a liquid crystal panel;
 - a pad part extending from the integrated circuit chip to be connected to the liquid crystal panel;
 - at least one bending part in which a portion of the base film is removed at an area where the tape carrier package is folded; and
 - at least one dummy bending part, in which a second portion of the base film is removed at a portion where the tape carrier package is not folded, thereby reducing a thermal expansion force and a thermal contraction force of the base film parallel to a longitudinal direction of the integrated circuit chip.
15. The tape carrier package according to claim 14, wherein said dummy bending part is positioned on the pad part.

* * * * *

EXHIBIT B

United States Patent [19]
Holmberg

[11] Patent Number: **5,019,002**
[45] Date of Patent: **May 28, 1991**

[54] METHOD OF MANUFACTURING FLAT
PANEL BACKPLANES INCLUDING
ELECTROSTATIC DISCHARGE
PREVENTION AND DISPLAYS MADE
THEREBY

4,586,242 5/1986 Harrison 437/8
4,714,949 12/1987 Simpkins et al. 357/23.13
4,736,271 4/1988 Mack et al. 357/23.13
4,803,536 2/1989 Tuan 357/23.13

[73] Inventor: Scott H. Holmberg, San Ramon,
Calif.

*Primary Examiner—Kenneth J. Ramsey
Attorney, Agent, or Firm—Leydig, Voit & Mayer*

[73] Assignee: Honeywell, Inc., Minneapolis, Minn.
[21] Appl. No.: 218,312

[57] **ABSTRACT**

[22] Filed: Jul. 12, 1988

Flat panel displays are provided including protection from electrostatic discharge (ESD) during manufacture and thereafter. At least one ESD guard ring is provided to protect the active elements of the display from the potential discharge between the row and column lines. An internal ESD guard ring is coupled to the row and column lines via shunt transistors. An external ESD guard ring is coupled to the row and column lines via a resistance. Both of the guard rings can be provided; however, the external guard ring is removed prior to completion of the display.

[51] Int. Cl. 5 H01L 45/00
[52] U.S. Cl. 445/24; 357/23.13;
437/56

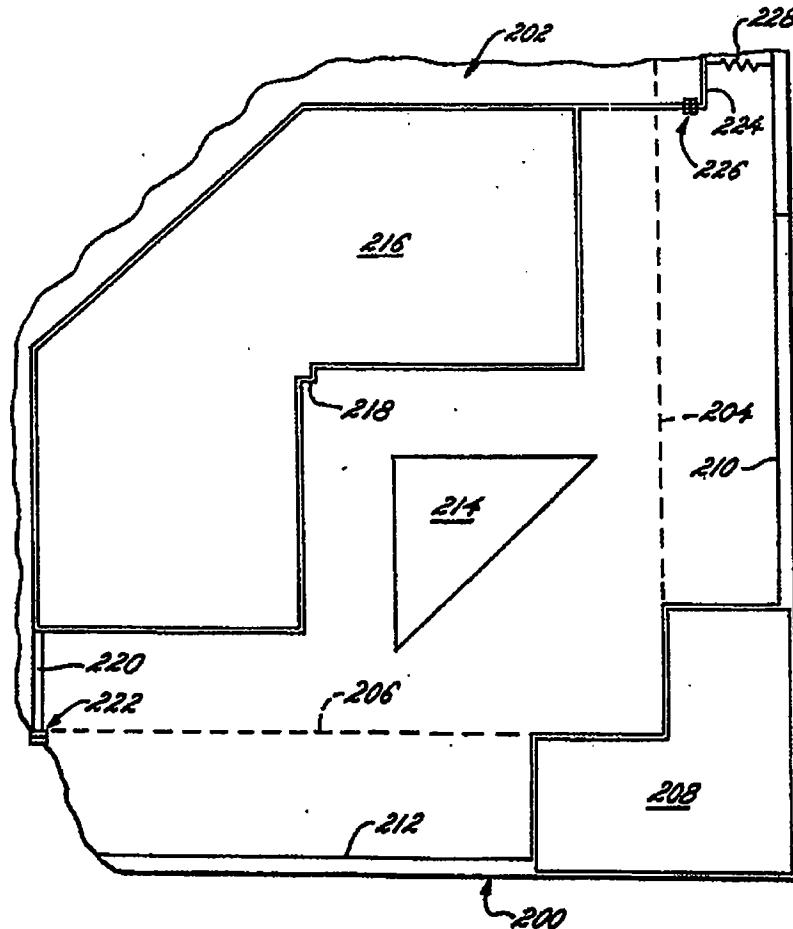
[58] Field of Search 445/24, 3; 357/23.13,
357/4; 437/4, 8, 56

[56] References Cited

U.S. PATENT DOCUMENTS

4,455,739 6/1984 Hynecek 427/8 X

36 Claims, 5 Drawing Sheets



U.S. Patent

May 28, 1991

Sheet 1 of 5

5,019,002

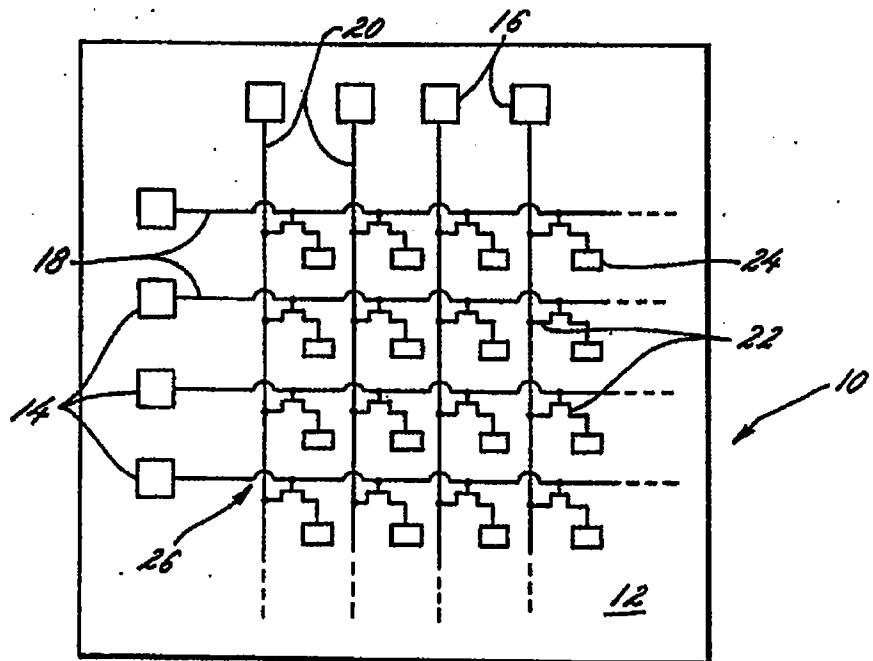


FIG. 1

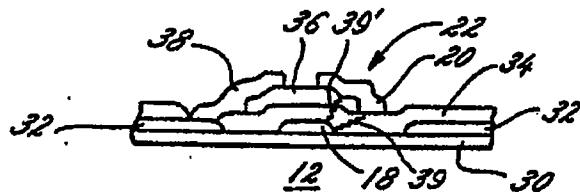
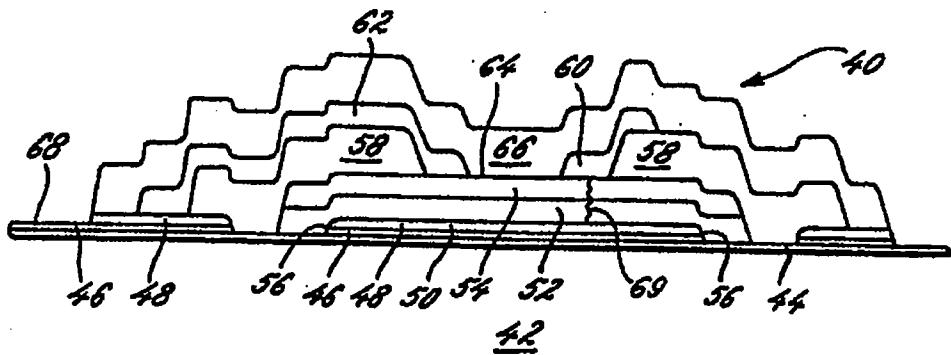


FIG. 2

FIG. 3



U.S. Patent

May 28, 1991

Sheet 2 of 5

5,019,002

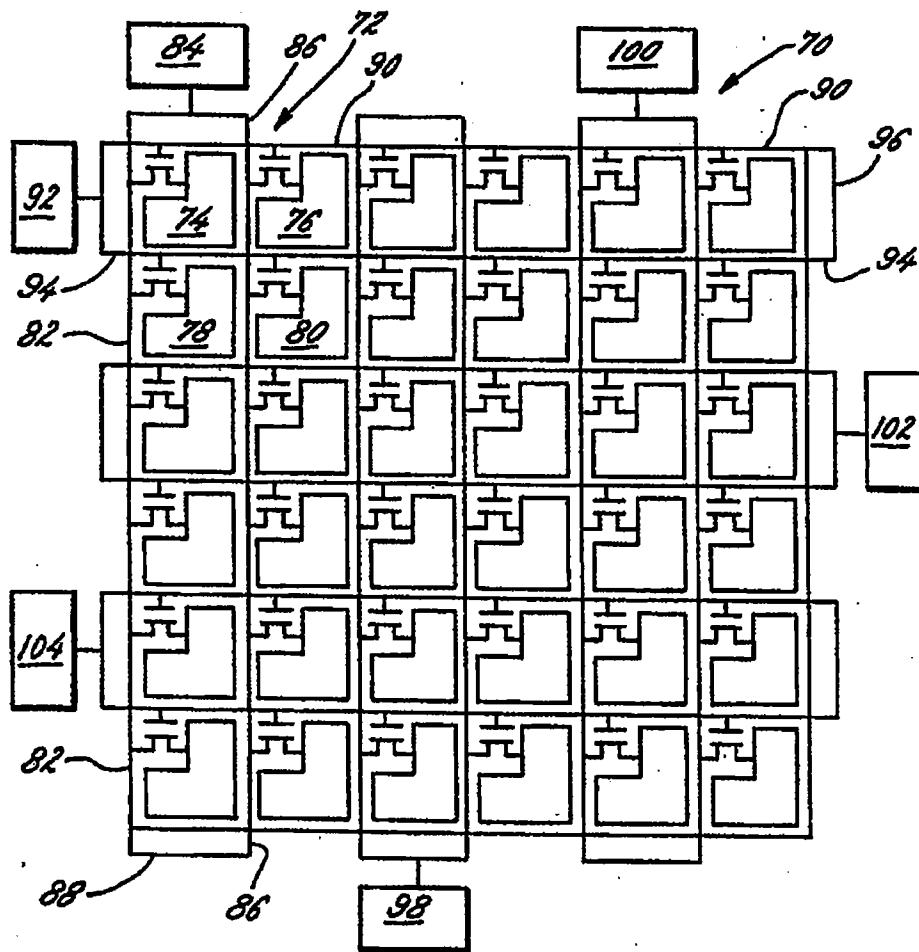


FIG. 4

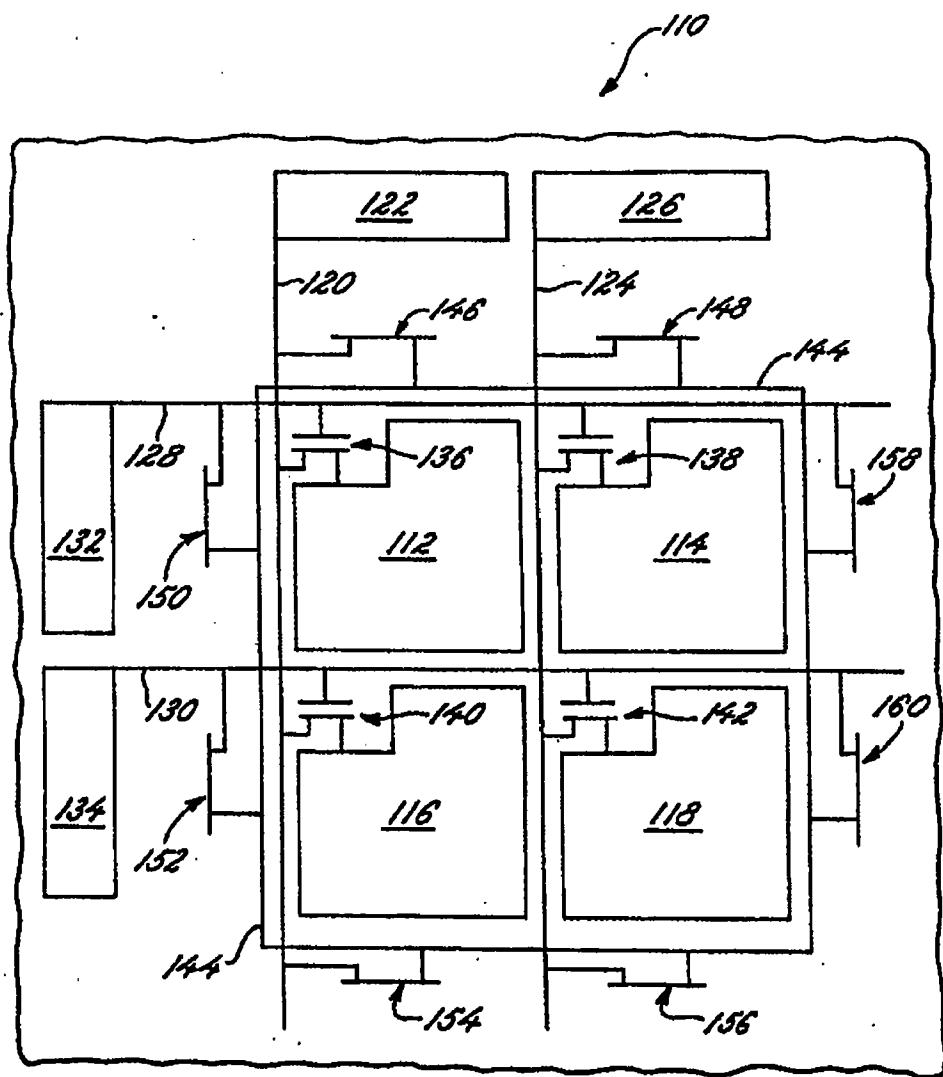
U.S. Patent

May 28, 1991

Sheet 3 of 5

5,019,002

FIG. 5

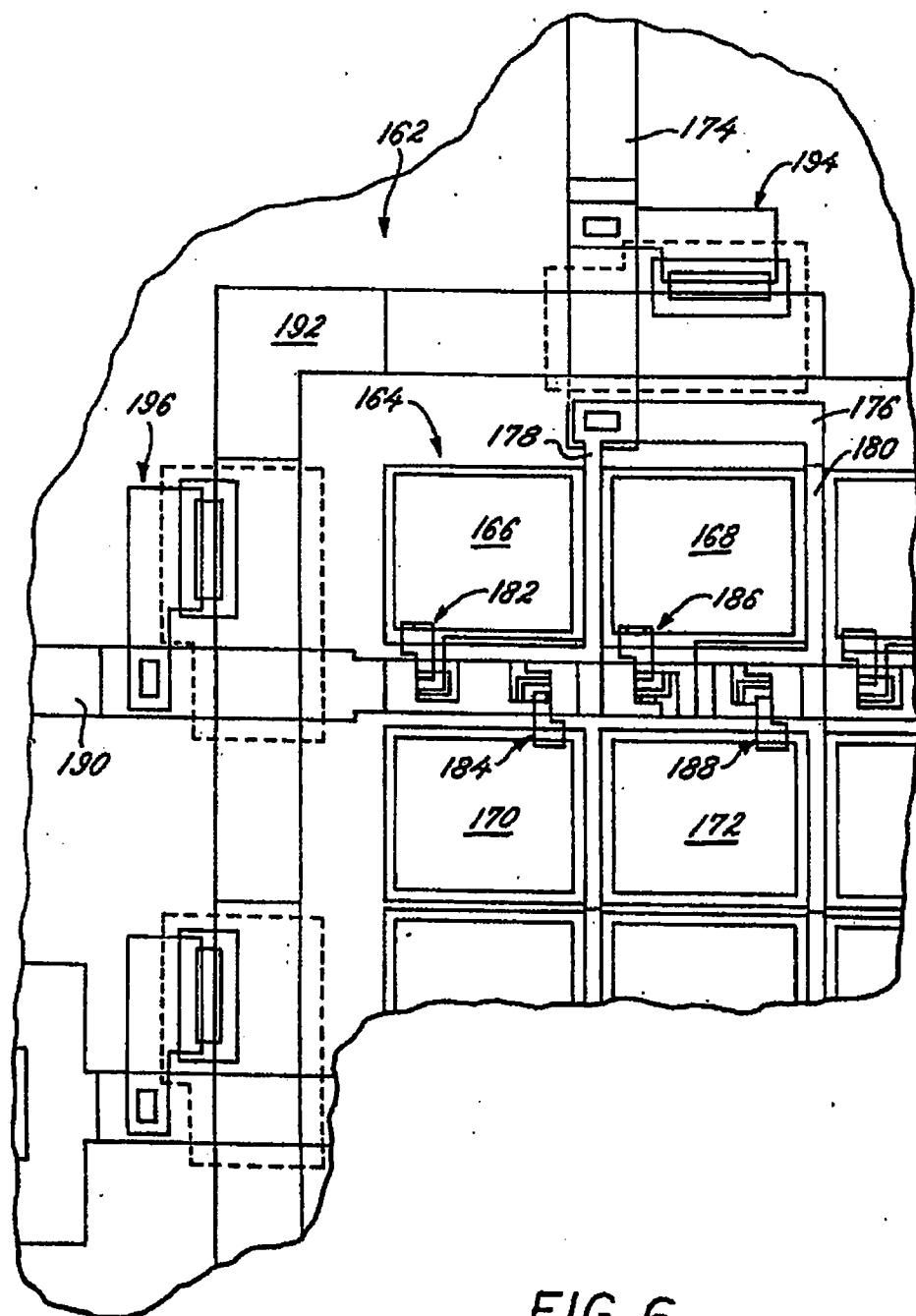


U.S. Patent

May 28, 1991

Sheet 4 of 5

5,019,002



U.S. Patent

May 28, 1991

Sheet 5 of 5

5,019,002

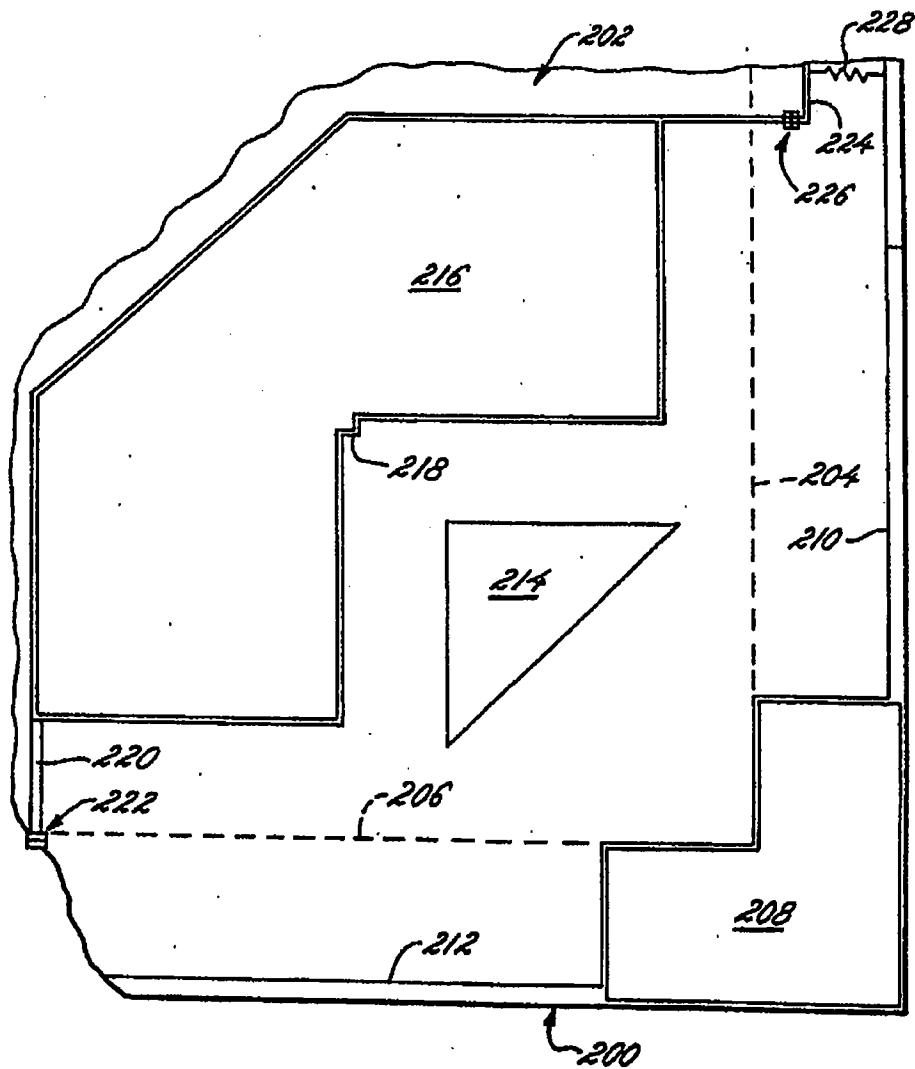


FIG. 7

5,019,002

1

2

METHOD OF MANUFACTURING FLAT PANEL BACKPLANES INCLUDING ELECTROSTATIC DISCHARGE PREVENTION AND DISPLAYS MADE THEREBY

BACKGROUND OF THE INVENTION

The present invention pertains to improved flat panel displays and methods of making the displays with protection from electrostatic discharges. More particularly, the present invention is directed to methods of increasing the manufacturing yields of flat panel display backplanes and the displays made therefrom by improving handling characteristics.

In recent years there has been growing interest in flat panel displays, such as those which employ liquid crystals, electrochromic or electroluminescence, as replacements for conventional cathode ray tubes (CRT). The flat panel displays promise lighter weight, less bulk and substantially lower power consumption than CRT's. Also, as a consequence of their mode of operation, CRT's nearly always suffer from some distortion. The CRT functions by projecting an electron beam onto a phosphor-coated screen. The beam will cause the spot on which it is focused to glow with an intensity proportional to the intensity of the beam. The display is created by the constantly moving beam causing different spots on the screen to glow with different intensities. Because the electron beam travels a further distance from its stationary source to the edge of the screen than it does to the middle, the beam strikes various points on the screen at different angles with resulting variation in spot size and shape (i.e. distortion).

Flat panel displays are manufactured to be substantially free of such distortion. In the manufacture of flat panel displays the circuit elements are deposited and patterned, generally by photolithography, on a substrate, such as glass. The elements are deposited and etched in stages to build a device having a matrix of perpendicular rows and columns of circuit control lines with a pixel contact and control element between the control line rows and columns. The pixel contact has a medium thereon which is a substance that either glows (active) or changes its response to ambient light (passive) when a threshold voltage is applied across the medium control element. The medium can be a liquid crystal, electroluminescent or electrochromic materials such as zinc sulfide, a gas plasma of, for example, neon and argon, a dichroic dye, or such other appropriate material or device as will luminesce or otherwise change optical properties in response to the application of voltage thereto. Light is generated or other optical changes occur in the medium in response to the proper voltage applied thereto. Each optically active medium is generally referred to as a picture element or "pixel".

The circuitry for a flat panel display is generally designed such that the flat panel timeshares, or multiplexes, digital circuits to feed signals to one row and column control line of the pixels at a time. Generally one driving circuit is used for each row or column control line. In this way a subthreshold voltage can be fed to an entire row containing hundreds of thousands of pixels, keeping them all dark or inactive. Then a small additional voltage can be supplied selectively to particular columns to cause selected pixels to light up or change optical properties. The pixels can be made to glow brighter by applying a larger voltage or current or a longer pulse of voltage or current. Utilizing liquid

crystal displays (LCD's) with twisted nematic active material, the display is substantially transparent when not activated and becomes light absorbing when activated. Thus, the image is created on the display by sequentially activating the pixels, row by row, across the display. The geometric distortion described above with respect to CRT's is not a factor in flat panel displays since each pixel sees essentially the same voltage or current.

One of the major problems that arises with respect to the prior art method of manufacture of backplanes for active matrix displays (e.g. those employing thin film transistors at each pixel) is that they generally suffer production yield problems similar to those of integrated circuits. That is, the yields of backplanes produced are generally not 100% and the yield (percentage of backplanes with no defects) can be 0% in a worst case. High quality displays will not tolerate any defective pixel transistors or other components. Also, larger size displays are generally more desirable than smaller size displays. Thus, a manufacturer is faced with the dilemma of preferring to manufacture larger displays, but having to discard the entire product if even one pixel is defective. In other words, the manufacturer suffers a radically increased manufacturing cost per unit resulting from decreasing usable product yield.

One solution to the low yield problem is disclosed in U.S. Ser. No. 948,224, filed Dec. 31, 1986, now U.S. Pat. No. 4,676,761 entitled "Method of Manufacturing Flat Panel Backplanes Including Improved Testing and Yields Thereof and Displays Made Thereby", which is owned by the assignee of the present application and is incorporated herein by reference.

These problems of increased cost and decreased yield are improved in the present invention by providing methods of manufacturing display backplanes and the resulting displays with electrostatic discharge protection which provide protection against fatal defects during and after manufacture of the displays.

SUMMARY OF THE INVENTION

There is provided improved methods of manufacturing backplanes and the resulting flat panel displays to increase the manufacturing yield, decrease manufacturing costs and substantially eliminate fatal display defects caused by electrostatic discharge during manufacture and thereafter.

These improvements are accomplished by forming at least one electrostatic discharge (ESD) guard ring around the active elements of the display. An internal ESD guard ring can be formed, which provides a discharge path for static potential applied across the row and column line of the display. This prevents the potential from discharging between the row and column lines through an active element causing a short and resulting in a defect in the display during manufacture or thereafter. An external ESD guard ring can be formed, which provides protection during manufacture of the displays, however, the external ESD guard ring is removed at the end of the display manufacturing process. The displays also can include both the internal and external ESD guard ring to provide protection during manufacture and thereafter.

5,019,002

3

4

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a plan view schematic representation of an active matrix display backplane made by a prior art method;

FIG. 2 is a cross-section of one transistor of the prior art backplane which could be utilized with the present invention;

FIG. 3 is a cross-section of one transistor which could be utilized with the present invention;

FIG. 4 is a plan view schematic representation of one prior embodiment of a subpixel matrix display;

FIG. 5 is a plan view schematic representation of a matrix display illustrating one embodiment of an internal ESD guard ring of the present invention;

FIG. 6 is an enlarged plan view of a portion of one embodiment of a subpixel matrix display illustrating the internal ESD guard ring in accordance with the present invention; and

FIG. 7 is a partial plan view of one embodiment of an exterior ESD guard ring of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now more particularly to FIG. 1, there is shown a schematic representation of an active matrix flat panel display device 10 made in accordance with conventional photolithographic techniques. One such device 10 and the manufacture thereof is more fully described in Application of Amorphous Silicon Field Effect Transistors in Addressable Liquid Crystal Display Panels, A. J. Snell, et al., *Applied Physics*, No. 24, p. 357, 1981. The device 10 includes a substrate 12, sets of contact pads 14 and 16, sets of control or bus lines 18 and 20, and, in this particular example of the prior art, transistors 22 and pixel back contacts 24.

The substrate 12 commonly employed in these devices is formed from glass. The control lines 18 and 20 are organized into a matrix of rows 18 and columns 20. The control line rows 18 in this device 10 serve as gate electrodes and the control line columns 20 as source connections. One contact pad 14 is connected to one end of each of the row control lines 18. One contact pad 16 is connected to one end of each of the column control lines 20. The display drive control (not shown) is connected to the sets of pads 14 and 16.

At each matrix crossover point 26, where a row line 18 and a column line 20 cross, a switching element, transistor 22 is formed to connect the row line 18 and column line 20 to the pixel back contacts 24. The active medium is deposited at least on the contacts 24 which will optically change properties in response to the combined voltages or currents in the respective crossover point 26 formed by the row 18 and column 20. The active medium at a given crossover point 26 will appear as a square or dot in the overall checkerboard type matrix of the display 10. The actual size of the transistors 22 and the contacts 24 are not now drawn to scale, but are shown schematically for illustration only.

It should be noted that theoretically there is no limit on the number of rows 18 and columns 20 that can be employed, only a portion of which are illustrated in FIG. 1. Therefore, there is also no theoretical limit on the outside dimensions of such a device 10. However, the present state of the lithographic art places a practical limit on the outside dimensions of these devices. The present alignment techniques generally allow high resolution display devices to be manufactured approxi-

mately five inches on a side 28, although improved techniques of up to fourteen inches on a side has been demonstrated.

The problem encountered by the prior art method of manufacture is that if the array of device 10 contains any defective pixel transistors 22 or other circuit elements causing a pixel to be inoperative, it must be discarded.

Referring in detail to FIG. 2, several problems occur when the switching element, transistor 22 is manufactured. The substrate 12 is a substantial portion of the backplane cost and hence an inexpensive soda-lime glass is generally utilized. It has been demonstrated by liquid crystal display manufacturers that the high sodium concentration can poison the liquid crystal materially diffusing through the overlying ITO layer and hence an SiO₂ suppression layer 30 is generally formed on the substrate 12. There are some high quality low sodium types of substrates available, which would not need the suppression layer 30. An ITO layer 32 is formed and etched to provide an ITO free area on which the gate 18 is deposited. Following the deposition of the gate 18, a gate insulator layer 34 is deposited. Although a smooth uniform coverage of the gate 18 by the insulator 34 is illustrated, in production the gate 18 has or can have sharp edges which lead to pin holes or thinning of the insulator 34 at the gate edges. The source and drain metals can short to the gate 18. The thinning or pin holes produce transistors 22, which if operative, do not have uniform operating characteristics and hence the backplane is worthless.

One attempt to solve this problem, is to make the gate 18 very thin, but the resistivity is then too high to make the large arrays necessary for the backplane. A second attempt to solve the problem, is to make the gate insulator 34 very thick, but this decreases the gain of the transistor 22 and is also self defeating.

An amorphous silicon layer 36 is then deposited, with the source 20 and a drain 38 deposited thereover. A passivating layer (not shown) would be deposited over the completed structure to complete the transistor 22. During operation the activation of the source 20 and the gate 18 couples power through the silicon alloy 36 to the drain and hence to the contact pad 24 formed by the ITO layer 32.

During manufacture of the device 10, electrostatic discharge can occur when a high static electric potential is coupled across at least one pair of the gate lines 18 and the source lines 20. The discharge frequently will result in a short 39 through the insulator 34 or a short 39' through the insulator 34 and the silicon layer 36 in the transistor 22, between the adjacent crossover points of the lines 18 and 20 as can be seen in FIG. 2. This will cause at least one row and one intersecting column of the display pixels to be defective and in the type of display device 10, generally the defect will be a fatal one (clearly visible) and hence the device will be discarded. The device 10 does not provide any redundancy or subpixels and hence the defect cannot easily be isolated.

Referring now to FIG. 3, there is shown a schematic representation of one embodiment of a transistor 40 which can be utilized with the present invention. The transistor is more fully disclosed in U.S. Pat. Nos. 4,545,112 and 4,736,229, which are incorporated herein by reference.

A glass substrate 42 includes a barrier SiO₂ layer 44 thereon. As above mentioned, a low sodium glass sub-

5,019,002

5

strate, such as Corning 7059 glass, could be utilized, and hence the barrier layer 44 can be eliminated. The detailed deposition steps are described in the above-referenced patent and application. An ITO layer 46 is deposited and then a refractory metal layer 48 is deposited on the ITO layer 46.

The layers 46 and 48 are etched to form a gate electrode 50. A gate insulator 52 and a semiconductor material 54 are sequentially deposited over the gate 50. The material 54 preferably is an amorphous silicon alloy. To avoid the possibility of any gate to source or drain shorts at gate edges 56, a dielectric 58 is deposited over the gate 55, the gate insulator 52 and the semiconductor 54. The dielectric 58 is deposited to a sufficient thickness to ensure that no shorts or thin spots are formed between the edges 56 of the gate 50 and a source 60 and a drain 62 deposited thereover.

The dielectric 58 is etched away only on a substantially planar central region 64 of the semiconductor layer 54. This insures uniform operating characteristics for the transistors 40 in the backplane array. A passivating layer 66 is deposited over the whole structure to complete the structure of the transistor 40.

During all of the transistor processing steps, the refractory metal layer 48 remains over a pixel contact pad 68 upon which the active material of the pixel is deposited. As a final step, before the active medium (not shown) is added to the backplane to complete the display, the refractory metal is etched off of the pixel pad 68 leaving the ITO layer 46 exposed after all the processing has been completed.

The gate to source or drain shorts referred to above in discussing the dielectric 58, refer to physical shorts caused by thin spots or actual metal particles or filaments. The electrostatic discharges caused during manufacturing and thereafter will be deterred by the dielectric 58, but will not be eliminated. The potential can be high enough to again form a short 69 through the gate insulator 52 and the semiconductor material 54 in the transistor 40, between the source 60 and the gate 50. Depending upon the display structure, at least one pixel or one subpixel (FIG. 4) will be defective.

Referring now to FIG. 4, a subpixel matrix display of the above-referenced application, U.S. Ser. No. 948,224, is designated generally by the reference numeral 70. The subpixel matrix display 70 is illustrated as having each pixel subdivided into four subpixels, but the pixels could be subdivided into numerous other configurations such as two subpixels, two by four or six subpixels or in three subpixels for color applications. Each pixel 72 is subdivided into four subpixels 74, 76, 78 and 80 (only one pixel 72 is so numbered for illustration). As previously stated, the number of pixels is merely shown for illustration purposes and the display 70 could contain any desired number and configuration, square or rectangular.

A column (source) line or bus 82 connects the subpixels 74 and 78 and all other column subpixel pairs in one-half of each of the pixels to a column or source contact pad 84 at one edge of the display 70. A second column (source) line or bus 86 connects the subpixels 76 and 80 and all other column subpixel pairs in the second half of each of the pixels to the column or source contact pad 84. The bus lines 82 and 86 are interconnected (shorted) at or before the pad 84 and are interconnected (shorted) at the opposite ends by a line or short 88.

6

A row (gate) line or bus 90 connects the subpixels 74 and 76 and all other row subpixel pairs in one-half of each of the pixels to a row (gate) pad 92. A second row (gate) line or bus 94 connects the subpixels 78 and 80 and all other row subpixel pairs in one-half of each of the pixels to the row pad 92. The bus lines 90 and 94 are interconnected (shorted) at or before the pad 92 and are interconnected (shorted) at the opposite ends by a line or short 96.

In a like manner, each of the other subpixel pairs are connected in columns to respective column (source) pads 98 and 100, etc. The pads 84, 98 and 100 are illustrated as being an opposite sides of the display to provide additional connecting space for the pads, however, they also could all be on one side as in the display 10. Each of the other subpixel pairs also are connected in rows to respective row (gate) pads 102 and 104, etc.

The pixel 72 is divided into four subpixels 74, 76, 78 and 80 which allows for one of the subpixels to be defective, such as the subpixel 74, without causing a fatal defect, since the remaining three subpixels 76, 78 and 80 remain operative. In prior devices, the pixel 72 would be totally defective and hence the display 70 would be inoperable.

Further, one often fatal display defect is caused by a defect or open in one of the row or column bus lines which would cause the whole row or column to be out, again resulting in an inoperative display 70. With the respective subpixels pairs of row and column bus lines interconnected, however, an open in a bus line will at most cause one subpixel to be inoperative. An open in one or more of the bus lines between the subpixels will result in no defects, since the current is supplied from the opposite shorted end of the row or column bus line. Thus, the display 70 in effect has redundant row and column bus lines.

To avoid the fatal defect of the multiple open lines, as also disclosed in U.S. Ser. No. 948,224, the redundant row and column bus lines can be further interconnected at each subpixel. Each pair of the column bus lines 82 and 86 are additionally interconnected between each of the subpixels 74, 78, etc. by respective lines or shorts. In a like manner, each pair of the row bus lines 90 and 94 are interconnected between each of the subpixels 74, 76, etc. by respective lines or shorts. Further, although both the row bus lines and the column bus lines can be interconnected between each subpixel, only one of the row or the column bus line sets might be shorted to limit the loss of active pixel display area.

The short 69 in one of the active devices in the display 70 can be eliminated by opening the row or column line between the short and the line. This results in only one subpixel, such as the subpixel 74 being defective and due to the small size of the subpixel, is not a fatal defect (i.e. not readily visual). The rest of the corresponding column and row subpixels would be operable due to the redundant and interconnected row and column bus lines.

Referring now to FIG. 5, a matrix display incorporating one embodiment of an internal ESD guard ring of the present invention is designated generally by the reference numeral 110. The matrix display 110 is illustrated having four pixels 112, 114, 116 and 118. The pixels, however, can be subdivided into numerous subpixel configurations such as two or four subpixels, two by four or six subpixels or in three subpixels for color display applications. Also, as previously stated for the

5,019,002

7

8

subpixel matrix display 70, the number of pixels can be of any number and configuration, square or rectangular.

A column (source) line or bus 120 connects the pixels 112 and 116 and all other pixels in the same column to a source contact pad 122 at one edge of the display 110. A source line 124 connects the pixels 114 and 118 to a source contact pad 126. In a like manner, a pair of row (gate) lines 128 and 130 connect respective pairs of pixels 112, 114 and 116, 118 in each row to respective gate pads 132 and 134.

Each pixel 112, 114, 116 and 118 includes a respective active element, such as transistors 136, 138, 140 and 142 which couple the pixels to the respective source lines 120 or 124 and gate lines 128 or 130. To prevent a large electrostatic potential discharging through one of the transistors 136, 138, 140 and 142, an internal ESD guard ring 144 is formed around the pixels 112, 114, 116 and 118. The guard ring 144 is illustrated as a closed ring, but could also be an open L or C-shaped line if the gate and source pads all are on one respective side of the display 110.

The ESD guard ring 144 also is coupled via respective transistors 146, 148, 150 and 152 to, the source and gate lines. The guard ring 144 will be coupled to the end of each source and gate line, so if the source and gate lines include pads at their opposite ends (not illustrated), then the guard ring 144 will include a further respective set of transistors 154, 156, 158 and 160.

The ESD guard ring 144 preferably is formed from a low resistance metal, such as an aluminum alloy. The transistors 146 through 160 can include a floating gate (not illustrated), no gate, or can include an oxide below to form a spark gap.

In operation, with the guard ring 144, a potential placed upon the source pads 122 will not short one of the transistors 136 or 140. Instead, the transistor 146 will turn on followed by the transistor 150, shorting the potential from the pad 122, via the line 120, the transistor 146, the guard ring 144, the transistor 150 and the line 128 to the pad 132. Thus, the guard ring 144 will not allow high potentials across the pads 122, 126, 132 and 134. The guard ring 144 preferably is formed concurrently with the display elements and is not removed, providing continuous protection even following manufacture of the display 110.

A specific subpixel display incorporating an internal guard ring of the invention is best illustrated in FIG. 6 and is designated generally by the reference numeral 162. The display 162 includes a plurality of pixels, each having four subpixels in a similar fashion to the display 70 illustrated in FIG. 4. Only one pixel 164 is illustrated in detail and includes four subpixels 166, 168, 170 and 172. A source line 174 includes a shorting line 176 which is connected to a pair of source lines 178 and 180, coupled to each of the subpixels by a respective transistor structure 182, 184, 186 and 188, which are not described in detail. The transistors 182, 184, 186 and 188 also couple the subpixels 166, 168, 170 and 172 to a gate line 190.

An internal ESD guard ring 192 is coupled via a transistor structure 194 to the source line 174 and via a transistor structure 196 to the gate line 190. The guard ring 192 and transistors 194 and 196 operate as before described to short any potential to ground. The low value of the normal operating voltages does not turn on the transistors 194 and 196, which do not effect the normal display operation.

The ESD preventive structure can also include an outer ESD guard ring 200, best illustrated in FIG. 7. Only one corner portion 202 of the display and guard ring 200 is illustrated. While the display is being manufactured, the outer guard ring 200 is connected to all of one of the source and gate pads (not illustrated), which pads are serially connected together via jumpers outside of scribe lines 204 and 206. A corner pad 208 is connected to each other corner pad (not illustrated) by respective outer conductive lines 210 and 212 of the guard ring 200. The L-shaped corner pad 208 can be grounded and also provides the alignment for the scribe lines 204 and 206, which are utilized to disconnect the source and gate jumpers and the guard ring 200 after the structure is completed. The corner portion 202 includes a triangular pad 214 which provides alignment for diagonal corner displays, when utilized.

A backplane pickup contact pad 216 also is provided, which includes a corner 218 for aligning the backplane with the front plane. The pad 216 includes a shunt line 220 which is connected to one set of source or gate lines via a shunt transistor 222 along the edge to be scribed and removed along the line 206. The line 210 is connected to the other set of gate or source lines by a shunt line 224, a shunt transistor 226 and a large resistance 228, such as 100 K ohms (illustrated schematically). The outer ESD guard ring 200 provides ESD protection only during manufacture of the display and is removed prior to completion of the display. The resistance 228 provides an ESD short for high electrostatic potentials, which can be incurred during manufacturing of the display which can be connected anywhere between the line 210 and the other set of gate or source lines. The resistance 228 minimizes the discharge current surge and the shunt transistors 222 and 226 act as before described. There will be at least one corner backplane pickup pad 216 and preferably there will be two or three, each with their associated shunt transistors.

The outer guard ring lines 210 and 212 preferably are formed at the same time as the first of the gate or source lines. The inner guard ring 44 and the associated shunt transistors of both guard rings preferably are formed concurrently with the other display structures. The scribe lines 204 and 206 can be prescribed, but left intact until the back and front planes are mated and then removed to provide the gate and source contacts for the printed circuit board connections.

Modification and variations of the present invention are possible in light of the above teachings. The transistors 22 or other types of two or three terminal switching devices can be utilized with the invention. The amorphous silicon alloy semiconductor material 54, could be any of numerous types of materials such as CdSe or GaAs materials. The ESD guard rings can be utilized separately or together with all types of active element matrix displays and not just those illustrated. The shunt transistors 146, 194 and 222, etc. also can be formed as other active switching elements, such as diodes. It is therefore to be understood that within the scope of the appended claims, the invention may be practiced otherwise than as specifically described.

What is claimed and desired to be secured by Letters Patent of the United States is:

1. A method of manufacturing active matrix display backplanes and displays therefrom, comprising:
providing a substrate;
forming a pattern of pixels on said substrate;

5,019,002

9

forming a plurality of row and column intersecting pixel activation lines, interconnecting substantially all of said row lines to one another and substantially all of said column lines to one another;

5 forming an outer electrostatic discharge guard ring on said substrate coupled to said interconnected row and column lines via a resistance to provide protection from electrostatic discharges between said row and column activation lines during manufacture of the displays; and

removing said outer guard ring and row and column interconnections prior to completion of the display.

2. The method as defined in claim 1 including coupling one plurality of said interconnected row and column lines to said outer guard ring via said resistance.

3. The method as defined in claim 2 including forming at least one pickup pad coupled to said resistance via a shunt switching element.

4. The method as defined in claim 3 including coupling said pickup pad to the other plurality of said interconnected row and column lines via another shunt switching element.

5. The method as defined in claim 3 including forming a corner on said pad to align the front plane and back plane of the display.

6. The method as defined in claim 3 including forming a plurality of pickup pads, each one on a separate corner of the display.

7. The method as defined in claim 1 including forming a corner pad on at least one corner of the display 30 and aligning scribe lines with said corner pad for removing said outer guard ring and row and column intersections.

8. The method as defined in claim 1 including forming an inner electrostatic discharge guard ring on said 35 substrate coupled to said row and column lines via shunt switching elements to provide protection from electrostatic discharges between said row and column activation lines during manufacture of the displays and thereafter.

9. The method as defined in claim 8 including forming separate shunt switching elements between said inner guard ring and each row and column line.

10. A method of manufacturing active matrix display 45 backplanes and displays therefrom, comprising:

providing a substrate;

forming a pattern of pixels on said substrate;

forming a plurality of row and column intersecting pixel activation lines; and

forming an inner electrostatic discharge guard ring on said substrate coupled to said row and column lines via shunt switching elements to provide protection from electrostatic discharges between said row and column activation lines during manufacture of the displays and thereafter.

11. The method as defined in claim 10 including forming separate shunt switching elements between said inner guard ring and each row and column line.

12. The method as defined in claim 10 including interconnecting substantially all of said row lines to one another and substantially all of said column lines to one another and forming an outer electrostatic discharge guard ring on said substrate coupled to said interconnected row and column lines via a resistance to provide protection from electrostatic discharges between said row and column activation lines during manufacture of the displays; and

10

removing said outer guard ring and row and column interconnections prior to completion of the display.

13. The method as defined in claim 12 including coupling one plurality of said interconnected row and column lines to said outer guard ring via said resistance.

14. The method as defined in claim 13 including forming at least one pickup pad coupled to said resistance via a shunt switching element.

15. The method as defined in claim 14 including coupling said pickup pad to the other plurality of said interconnected row and column lines via another shunt switching element.

16. The method as defined in claim 14 including forming a corner on said pad to align the front plane and back plane of the display.

17. The method as defined in claim 10 including forming a plurality of pickup pads, each one on a separate corner of the display.

18. The method as defined in claim 10 including forming a corner pad on at least one corner of the display and aligning scribe lines with said corner pad for removing said outer guard ring and row and column intersections.

19. An active matrix display backplane, comprising:
a substrate;
a pattern of pixels formed on said substrate;

a plurality of row and column intersecting pixel activation lines, substantially all of said row lines interconnected to one another and substantially all of said column lines interconnected to one another; and

an outer removable electrostatic discharge guard ring formed on said substrate coupled to said interconnected row and column lines via a resistance to provide protection from electrostatic discharges between said row and column activation lines during manufacture of the displays.

20. The backplane as defined in claim 19 including one plurality of said interconnected row and column lines coupled to said outer guard ring via said resistance.

21. The backplane as defined in claim 20 including at least one pickup pad coupled to said resistance via a shunt switching element.

22. The backplane as defined in claim 21 including said pickup pad coupled to the other plurality of said interconnected row and column lines via another shunt switching element.

23. The backplane as defined in claim 21 including a corner formed on said pad to align the front plane and back plane of the display.

24. The backplane as defined in claim 21 including a plurality of pickup pads, each one formed on a separate corner of the display.

25. The backplane as defined in claim 19 including a corner pad formed on at least one corner of the display and having scribe lines aligned with said corner pad for removing said outer guard ring and row and column intersections.

26. The backplane as defined in claim 19 including an inner electrostatic discharge guard ring formed on said substrate coupled to said row and column lines via shunt switching elements to provide protection from electrostatic discharges between said row and column activation lines during manufacture of the displays and thereafter.

27. The backplane as defined in claim 26 including separate shunt switching elements formed between said inner guard ring and each row and column line.

5,019,002

11

28. An active matrix display backplane, comprising:
 a substrate;
 a pattern of pixels formed on said substrate;
 a plurality of row and column intersecting pixel activation lines; and
 an inner electrostatic discharge guard ring formed on said substrate coupled to said row and column lines via shunt switching elements to provide protection from electrostatic discharges between said row and column activation lines during manufacture of the displays and thereafter.

29. The backplane as defined in claim 28 including separate shunt switching elements formed between said inner guard ring and each row and column line.

30. The backplane as defined in claim 28 including substantially all of said row lines interconnected to one another and substantially all of said column lines interconnected to one another and an outer electrostatic discharge guard ring formed on said substrate coupled to said interconnected row and column lines via a resistance to provide protection from electrostatic dis-

12

charges between said row and column activation lines during manufacture of the displays.

31. The backplane as defined in claim 30 including one plurality of said interconnected row and column lines coupled to said outer guard ring via said resistance.

32. The backplane as defined in claim 31 including at least one pickup pad coupled to said resistance via a shunt switching element.

33. The backplane as defined in claim 32 including said pickup pad coupled to the other plurality of said interconnected row and column lines via another shunt switching element.

34. The backplane as defined in claim 32 including a corner formed on said pad to align the front plane and back plane of the display.

35. The backplane as defined in claim 28 including a plurality of pickup pads, each one formed on a separate corner of the display.

36. The backplane as defined in claim 28 including a corner pad formed on at least one corner of the display and having scribe lines aligned with said corner pad for removing said outer guard ring and row and column intersections.

* * * *

25

30

35

40

45

50

55

60

65

UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION

PATENT NO. : 5,019,002

DATED : May 28, 1991

INVENTOR(S) : Scott H. Holmberg

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

Col. 2, lines 30-31, change "4,676,761" to
--4,820,222--;

Col. 4, line 15, change "materially" to
--material by--;

Col. 5, line 53, change "30" to --80--;
line 59, change "all" to --all--;

Col. 7, line 23, delete the third comma;

Col. 8, line 41, change "firs;" to --first--.

Signed and Sealed this

Twenty-third Day of February, 1993

Attest:

STEPHEN G. KUNIN

Attesting Officer

Acting Commissioner of Patents and Trademarks

EXHIBIT K

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF DELAWARE

Filed in open court this

27th day of July 2006

JL

LG. PHILIPS LCD CO., LTD ,)
Plaintiff,) C.A. No. 05-292 (JJF)
v.)
TATUNG COMPANY,)
TATUNG COMPANY OF AMERICA, INC.,)
CHUNGHWA PICTURE TUBES, LTD.,)
AND VIEWSONIC CORPORATION,)
Defendants.)

SPECIAL VERDICT FORM

1. Do you find that LPL has proven by a preponderance of the evidence that the method CPT uses to manufacture its LCD modules using only outer guard rings literally infringes Claim 1 of the '002 patent?

Yes (infringes) No (does not infringe)

2. Do you find that LPL has proven by a preponderance of the evidence that the method CPT uses to manufacture its LCD modules using only outer guard rings infringes Claim 1 of the '002 patent under the doctrine of equivalents?

Yes (infringes) No (does not infringe)

3. Do you find that LPL has proven by a preponderance of the evidence that the method CPT uses to manufacture its LCD modules using both inner and outer guard rings literally infringes Claim 1 or Claim 8 of the '002 patent? Answer "yes" or "no" for each claim listed below.

Yes (infringe) No (do not infringe)

Claim 1 /

Claim 8 /

4. Do you find that LPL has proven by a preponderance of the evidence that the method CPT uses to manufacture its LCD modules using both inner and outer guard rings infringes Claim 1 or Claim 8 of the '002 patent under the doctrine of equivalents?

Yes (infringe) No (do not infringe)

Claim 1 /

Claim 8 /

If you have answered "yes" to any of questions 1 through 4, proceed to question 5. Otherwise, skip questions 5 through 9 and proceed to question 10. For questions 5 through 8, an "infringing product" is one that is made by a method patented in the United States.

5. A. Do you find by a preponderance of the evidence that CPT has used, sold, or offered for sale in the United States, or imported into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

B. Do you find by a preponderance of the evidence that CPT has actively induced anyone to use, sell, or offer for sale in the United States, or to import into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

6. A. Do you find by a preponderance of the evidence that Tatung Company has used, sold, or offered for sale in the United States, or imported into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

B. Do you find by a preponderance of the evidence that Tatung Company has actively induced anyone to use, sell, or offer for sale in the United States, or to import into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

7. A. Do you find by a preponderance of the evidence that Tatung Company of America has used, sold, or offered for sale in the United States, or imported into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

B. Do you find by a preponderance of the evidence that Tatung Company of America has actively induced anyone to use, sell, or offer for sale in the United States, or to import into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

8. A. Do you find by a preponderance of the evidence that ViewSonic Corporation has used, sold, or offered for sale in the United States, or imported into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

B. Do you find by a preponderance of the evidence that ViewSonic Corporation has actively induced anyone to use, sell, or offer for sale in the United States, or to import into the United States, any infringing CPT LCD product or any completed LCD display that contains an infringing CPT LCD product?

Yes / No _____

If you have answered "yes" to any of questions 5 through 8, then proceed to question 9. Otherwise, skip question 9 and proceed to question 10.

9. Do you find by clear and convincing evidence that any Defendant's infringement of the claims of the '002 patent was willful? Answer "yes" or "no" for each Defendant below.

	Yes	No
Chungwha Picture Tubes	<u>/</u>	_____
Tatung Company	<u>/</u>	_____
Tatung Company of America	<u>/</u>	_____
ViewSonic Corporation	<u>/</u>	_____

10. Do you find that Defendants have proven by clear and convincing evidence that Claim 1 of the '002 patent is invalid by anticipation?

Yes _____ No /

11. Do you find that Defendants have proven by clear and convincing evidence that claim 8 of the '002 patent is invalid for obviousness?

Yes _____ No /

If you have found infringement of a valid claim, then proceed to question 12. Otherwise, your deliberations have ended.

12. On what date do you find that LPL first provided CPT with effective notice that CPT allegedly infringed the '002 patent?

Date: 02 - 27 - 02

13. What sum of money would fairly and adequately compensate LPL for infringement?

Answer: \$ 52,477,000.00

Eugene Moore
Jury Foreperson

Howard P. Weidner
Juror

Mark E. Johnson
Juror

Beth Lowney
Juror

Curt Boll
Juror

John O'Connor
Juror

MIC B. Lehr
Juror

Walter J. Reiss
Juror

Frank J. Twp
Juror

Dated: July 27, 2006.

EXHIBIT L

IN THE PATENTS COUNTY COURT
[2005] EWPCC ()

Claim No: PAT 04022



Before: His Honour Judge Fysh QC

BETWEEN:

L.G.PHILIPS LCD CO. LTD Claimant

and

(1) TATUNG (U.K.) LTD
(2) VIEWSONIC EUROPE LTD.
(3) NUMBER ONE SERVICES LTD Defendants

[Draft] JUDGMENT

Michael Tappin, instructed by Simmons & Simmons, appeared for the Claimant.
Richard Meade, instructed by Wragge & Co, appeared for the Defendants.

Dates of hearing: 15- 16 and 19-22 September and 31 October 2005

This judgment is in draft form and will be handed down in final form after the parties' counsel have had an opportunity to review it for typographical and similar errors. Such errors (if any) should be notified to the judge's clerk please, by fax (020 7073 4253) before close of business on 14 November 2005 .

Draft Judgment

Introduction¹

- 1 This is a patent infringement action with a counterclaim for revocation of the patent . The patent, No 2346464 ('the Patent'), stands in the name of the claimant, a Korean company, LG Philips LCD Ltd. I shall refer to the claimant (for whom Mr Michael Tappin appeared), as 'LG'. The date of filing of the Patent was 23 October 1999. The Patent is entitled '*Portable Computer*' but this is a misnomer. The claims, which are all product claims, cover items used not only in portable computers but also in display monitors (and possibly other devices) which make use of flat panel display systems. Moreover the Patent actually concerns a way of *mounting* flat panel display devices into housings, the combination being subsequently incorporated into devices of this type.
- 2 There are three defendants (who are independent of each other) for whom Mr Richard Meade appeared. The first defendant is Tatung (UK) Ltd ('Tatung') who has admittedly sold one of the alleged infringements-a 15" LCD CCTV Monitor ('the CCTV monitor'). Another defendant is ViewSonic Europe Ltd ('ViewSonic') who it is agreed, has imported and sold a ViewSonic VX 2000 TFT 20" LCD desktop computer monitor ('the VX2000 monitor'). Its distributor is the third defendant, Number One Services Ltd. ViewSonic has accepted liability (if any) for the acts of its distributor who has played no part in these proceedings. Though the infringements are different, I have often referred to the defendants simply as 'Tatung', where the context admits.
- 3 Infringement was denied and in their counterclaim, Tatung and ViewSonic have attacked the validity of the Patent on the grounds of anticipation , obviousness and insufficiency. Six items of prior art were relied upon, four patents and two monitors which were alleged to be prior uses. The patents were as follows:
 - (i) US patent 5, 119, 204 ('Hashimoto')
 - (ii) US patent no 5,570, 267 ('Ma')
 - (iii) Japanese Patent appn no 09- 190156 ('Fujitsu 156')
 - (iv) Japanese patent appn. 09-171358 ('Fujitsu 358').

The case on the two Fujitsu citations was virtually identical. The two prior art monitors pleaded were

- (i) A PixelVision monitor, and
- (ii) An L4KAS monitor

Examples of these monitors were in court. The L4KAS monitor was no longer relied upon after amendments to certain claims of the Patent were proposed (see below).

- 4 LG has denied that there had been an enabling disclosure of the PixelVision monitor before the priority date and evidence on this topic was given by video link at the Royal Courts of Justice. A Mr Stuart Morgan² from Cincinnati, Ohio was cross-examined on this topic and

¹ I have referred to papers in the Court bundle by volume, divider and (where necessary) by paragraph: thus 4/1/§8. Transcripts are identified by day and page thus: D2/56

² Who I believe was responsible for the PixelVision monitor.

as a result, I am satisfied that the PixelVision monitor was indeed made available to the public before the priority date. I go further: I feel that this was an exercise which could and should have been sorted out before trial. For present purposes however, I need say no more about the matter. I should also say that the ground of insufficiency was not developed at trial. In essence, this case has provided a good example of the dynamic of traditional infringement/validity 'squeeze' in a patent infringement action.

- 5 As noted, there has also been an application by LG to amend the Patent 'to distinguish the invention of the Patent more clearly' from most of the prior art citations mentioned in § 3 above³. This application has been opposed by the defendants on two grounds: disclosure of added matter and lack of clarity. It is important for LG to secure the amendments since I was told by Mr Tappin that in the event that the more important amendments were not allowed, the action would fail. I have therefore proceeded on the following basis. I have first considered the Patent and associated general topics (principally common general knowledge, the state of the art and the skilled addressee). Then I have considered the allowability of the amendments. Thereafter I have considered construction, infringement and validity on the basis of the Patent as proposed to be amended. In this, I have followed the course of action taken by counsel.
- 6 I was told that parallel proceedings involving some of the present litigants are afoot in the USA and that Tatung's expert witness, a Mr Mark Brinkerhoff, is involved in those proceedings. Mr Brinkerhoff was asked some questions about his involvement in this litigation but nothing of sufficient importance has come of it to warrant further comment.

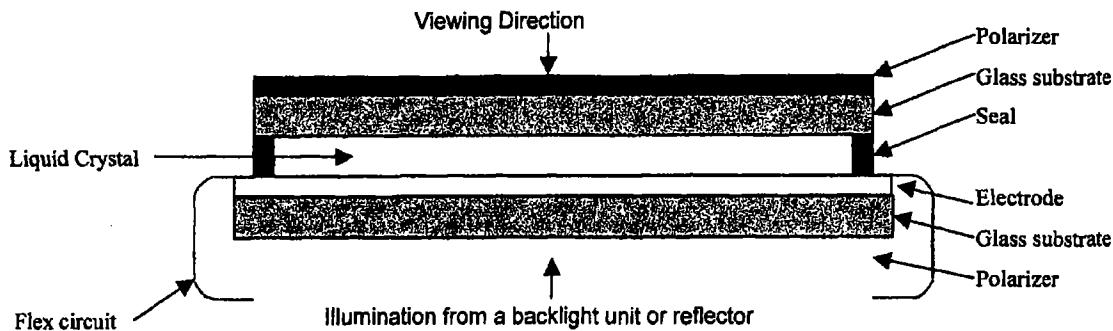
Some Introductory Technical Background

- 7 The Patent is concerned with the mounting of a flat-panel display device within a two part housing. The resulting unit may then be incorporated into various products: a laptop computer for example or it may be fixed to a stand for use as a monitor. Such devices were in common use before the priority date. By the priority date, these devices made use of three quite different technologies so as to create and display the required image: LCDs (liquid crystal displays), PDPs (plasma display panels) and FEDs (field emission displays). The teaching of the Patent is directed to display devices which function in all three ways but the invention is illustrated and discussed in relation principally to LCD displays in laptop (or notebook) computers. Furthermore, certain claims are actually limited to LCD devices alone. In what follows, I too shall confine myself to displays and display devices operating by LCD.
- 8 I should sound a note of caution regarding nomenclature since in this case one has to be most careful about it. Unfortunately, word usage both in the narrative of the Patent, in the cited documents and indeed during the entire course of the case, has not been consistent. The meaning of a number of such words and phrases was very much in issue and later, when I deal with construction, I shall return to argument on the matter. For the moment however I shall briefly describe the major components of the hardware involved taking a computer monitor as an example and starting from its outside.

³ 4/2/§4

- (i) The monitor has a two-part cover called a *display case* which consists of a square or rectangular front (with a bezel through which the display may be viewed) and a corresponding solid rear which forms the entire back of the *display case*. From time to time the two parts are also called *front* and *rear frames*. They are also called *housings*.
 - (ii) Let us next open up and detach the display case of the monitor. One now sees the two housing parts. The front frame or housing is usually attached directly to the rear housing. Next, the operative heart of the monitor is also visible. It has the appearance of a solid, thin, rectangular slab, and is attached to the rear housing and fits within it. It is called (in this instance) the *LCD module*, the *LCD display device*, or simply, the *device*. Workers in this field (and the experts in this case) usually refer to it as the 'module' -and so shall I. It has electrical connections at its sides so that video signals from a computer or CCTV for example can be fed into it. The mounting of the module to the display case is at the heart of the Patent.
 - (iii) An *LCD module* is an assembly of sub-units which have been sandwiched together within a peripheral *supporting frame* (or frames). The result is the thin square or rectangular slab-like unit previously referred to. I shall describe how the module works below.
 - (iv) The *module* and both parts of the *housings* have provision for mutual fixing.
 - (v) The *display* ie what the viewer sees in the *display area*, is created within a *glass*, the latter being part of the 'sandwich' mentioned above. This is made visible in the case of an LCD module using a '*backlight unit*'. '*Glass*' is the term used by the experts (though it is not used in the Patent) no doubt because the item is largely made of glass. In the narrative of the Patent, this item is always called the *LCD panel*.
 - (vi) The *glass* as manufactured consists of two areas: a larger central area wherein the *display* is created electrically and a lesser peripheral area surrounding it which is inactive and with the supporting frame, is located under the bezel but is invisible to a person viewing the display.
9. I should say this about LCD modules. At all material times, these items were almost always bought in by (for example) computer manufacturers, ready-made, from module manufacturers (of which there were quite a few by the priority date). They were made to different sizes and configurations appropriate for their intended application. From the evidence, I accept that at the priority date end users in practice got what the manufacturers had available and not necessarily what they might have wished for; they adapted to what was most suitable to their requirements from the manufacturers' repertoire. For this reason, designers of commercial end products of the kind in issue seem to have had little control over the design of the LCD modules they used. This fact will be of some importance in relation to the evidence on validity. Mr Tappin has advanced a '*Dyson-style mindset*' argument as an antidote to the case on obviousness, his expert a Mr Nicholas Talesfore, saying that at the priority date, when it came to LCD modules, designers of end products never really thought beyond what the manufacturers had available. Such thinking said Mr Meade was certainly not due to '*mindset*' in the industry; *mindset* is a mental affliction whereas component availability is not. I shall have to deal with this later.

10 Illustrated below is part of an LCD *panel* or ‘glass’ in cross-section:



The following is an agreed description of how an LCD module (panel/glass and backlight) works⁴:

- (i) The Liquid Crystal section is a fluid layer sandwiched between two glass substrates. The lowermost glass substrate is provided with an electrode grid. An image is created by applying electric voltage across the electrode grid via the Flex Circuits that are at the edge of the glass. The voltage orientates the liquid crystals into a desired pattern. The Liquid Crystal panel thereby provides a matrix of very small dots or pixels that are used to form a pattern. There are two polarizers permitting light to pass in a particular orientation. An image is viewable through the upper polarizer, depending on the orientation of the crystals at individual pixels. The image is visible to the human eye, once illuminated from the rear. (NB. There is no creation of light in the above process, merely transmission.). The lowermost polarizer provides a desirable orientation of the light beams for illumination (whether ambient or backlight).
- (vii) The rear illumination could be provided either by a reflector or by a “backlight unit” although a backlight unit is the more common form of rear illumination in larger applications such as monitors, notebook computers or televisions. A backlight unit or a reflector is typically provided with the LCD panel as described above packaged as a single item. An example of an application that uses both methods is a digital watch – when used in lighted conditions the readout is visible via the reflective process but when viewed in dark conditions the user switches on a backlight device contained within the watch to enable visibility of the readout.

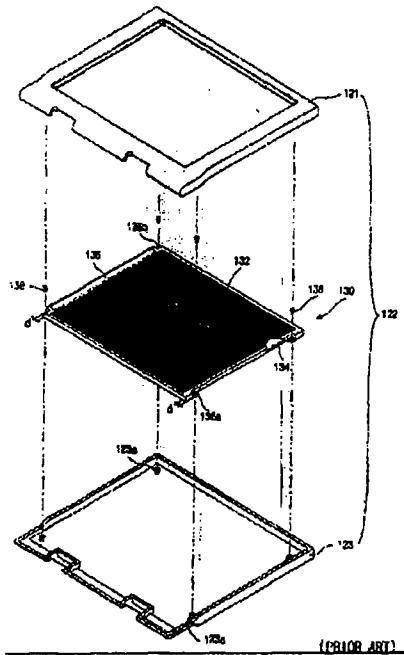
The Patent

11. No doubt because the Patent has been drafted in ‘problem and solution’ form, LG devotes an introductory section (and some of the attached diagrams) to the prior art. This section describes an LCD module mounted in a two part housing for use in a laptop computer.

⁴ The preceding diagram was also agreed.

The module is there called 'a flat panel display device assembly'. The display case is becomes the upper part of a two-part folding laptop computer.

12. Prior art methods of creating the display case are illustrated in figures 1, 2 and 3 but the salient point for the purpose of understanding the invention can best be picked up from Figure 2 which is reproduced below.



13. Using the nomenclature of the Patent, the display case 122 consists of two parts: a rear case or frame (123) and a front case or frame 121. The rear frame is solid having connecting ribs 123a at its corners for connecting the LCD module 130 to it. Looking next at the LCD module, this consists of three parts: the LCD 'panel' 132⁵, a backlight device 136 fixed to the back of the LCD panel and a supporting frame 134 'for assembling the panel 132 and the backlight device 134 along the edge'. At the corners of the supporting frame 136 corresponding to the position of the ribs 123a in the case, a 'plurality of protrusions 136a having holes are formed'. Note the small lateral dimension 'd' of the fixing flange.

14. In the so-called 'front mounting method', an LCD module 130 is placed on the rear case 123 and screwed to it via the holes in the protrusions 136a, the screws going from front to back. Thereafter 'the front case 121 is coupled to the rear case 123'. The narrative continues:

'In the front mounting structure of the LCD device, since the protrusions 136a require additional space corresponding to the protruded width d, the display area of the LCD device is reduced in comparison to the fixed size of the case 122.' (p. 2, ll13-15). [Emphasis added]

⁵ This is the glass.

Figs 3A and 3B (not reproduced in this judgment) depict another prior art mounting scheme for an LCD module having further (and even more protruding) fixing flanges. The resultant drawback is noted in similar terms;

'Therefore the side space D ...results in a reduction of the display area of the LCD panel 112 relative to the display case 122. Moreover, as the display size increases, the display case becomes undesirably large, especially for a laptop computer...'

15. This is the problem which the Patent is said to overcome. The prior art LCD module is said to require side space leading to a reduction in the *display area* relative to the size of the *display case* in which the *LCD module* is housed. There was thus an excessive 'bezel area' relative to the LCD display area. The patent continues (p3, ll14-18):

'To solve the above problem, and to provide a large display area with minimal display case size, a new mounting structure is needed for the LCD device.'

Later, at the end of the Patent (p14, ll 6-8), there is the following:

'As explained above, the mounting method does not require *unnecessary side space* for mounting the LCD device on the computer. Thus, the ratio of the display area of the LCD device to the display case can be improved and maximised.' [Emphasis added]

The object of the invention is therefore to maximise the *display area* of the *display case*. And how is it proposed that this should be done? Simply by re - positioning the mounting flanges at the side of the module *to the rear of the module*⁶. Mr Tappin accepted that it was the *idea* of making this change which was at the heart of the invention. In response, Mr Meade characterised moving the mounting means to the rear of the module as being trivial in character.

16. Before going on to describe an embodiment of the invention, I should put down two markers:

- (i) It was Mr Meade's submission that the 'problem' associated with protuberant side mounting flanges was one which only affected laptop computers whose available maximum width was in any event limited by the width of the associated keyboard; this was therefore not a problem which affected all monitors. In free-standing monitors, any reasonable size of display could be chosen and tolerated as it did not matter that flanges were hidden under the side bezel. I do not recollect that Mr Tappin answered this observation.
- (ii) The other general point is this: it was common ground that the means of fastening at the rear of the module (such as by screws or detents) is not part of the invention. The actual means of fixing flows uninventively from the idea of re-positioning the fixing means.

⁶ As will be seen, Mr Tappin's location of the fixing means is more narrowly defined. He says 'to the rear of the display' rather than just 'to the rear of the module'. The significance if this will appear later .

17. The invention may be sufficiently appreciated by consideration of the first two embodiments which are shown in Figures 4-7. Further embodiments are described and shown in other figures. It is to be noted that the embodiments of the invention, unlike those of the prior art, are not always shown within the two-part housing for final incorporation into a product such as a computer. First I have reproduced Figures 4A and 4B which show the front and rear of an LCD module in accordance with the first embodiment of the invention. Item 10 in fact is referred to as 'the LCD device' which is what I have called an LCD module. Item 12 is again referred to as 'an LCD panel' (i.e. the glass) which from the viewing direction, is surrounded by 'supporting frame 16'. Another frame called 'the first frame' carries at its corners and to its rear, four screw holes 15 whereby the module may be fixed to the rear part of the housing.

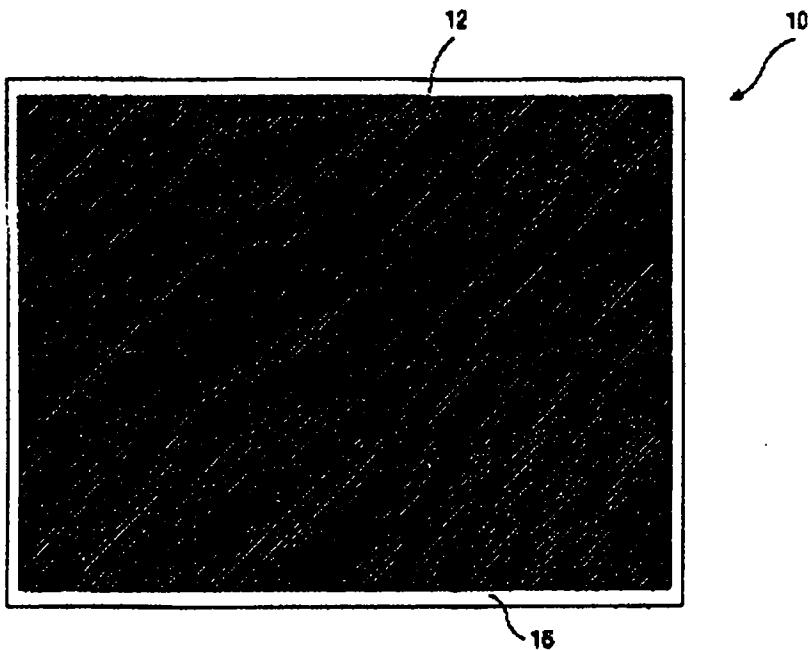


FIG. 4A

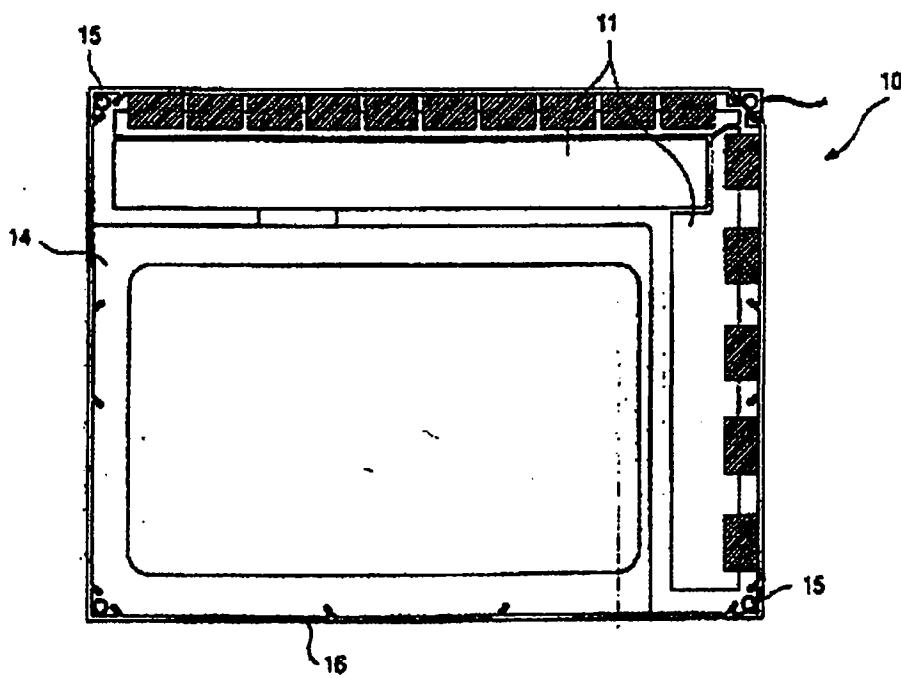
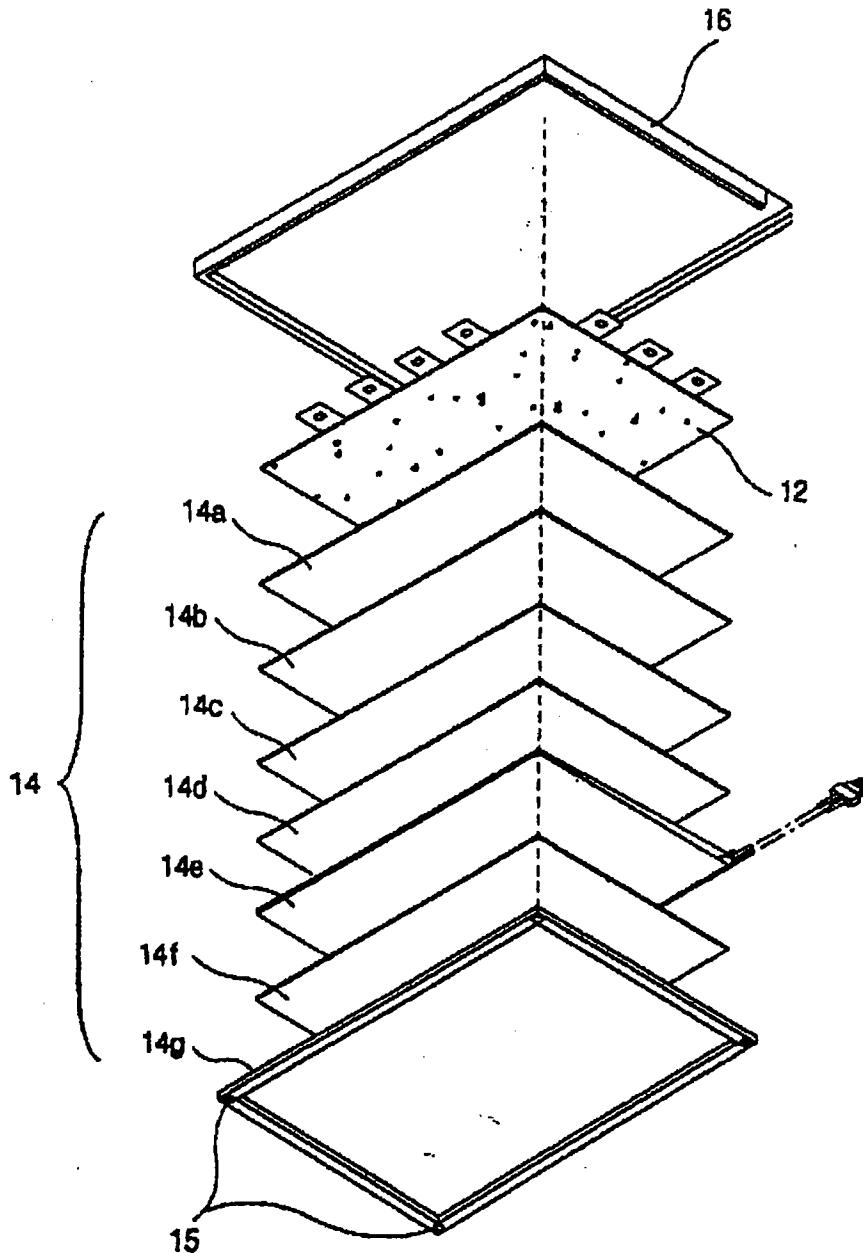


FIG. 4B

18. Figure 4C was the subject of much discussion during the case and may I believe be described as an exploded representation of a conventional LCD module save as to the fixing points⁷ (cf. item 130 of the prior art above). The figure is reproduced below.



Items 14 a-f are the customary parts of a backlight unit 14: see § 10 above. The screw holes 15 are again visible at 'each corner of the first frame 14g', the latter being described as forming part of the backlight unit 14. Item 12 is again called the LCD panel and has a number of 'ears' attached to it to provide appropriate electrical connections. These are

⁷ It is in fact described in the Patent as 'the LCD device 10' of Figs 4A and B.

folded down when the sub-layers are assembled as a unit. In Figures 4A-C, 16 is described as the 'supporting frame' in the narrative and as 'a second frame' in the claims. It is in fact the bezel for the module and is on the viewing side of the LCD display case. I would add that save for the screw holes 15, the panel and the backlight unit of the invention appear to be structurally and functionally identical to what is described in the prior art.

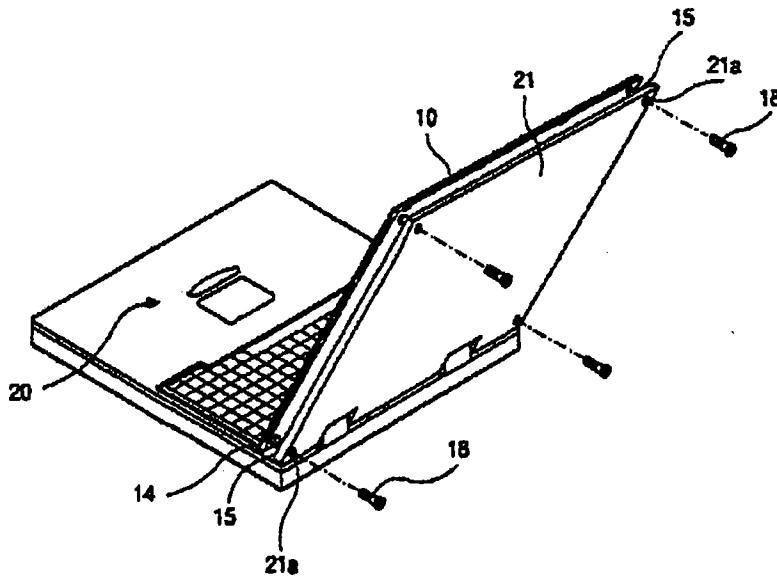
19. The narrative continues:

'The first frame 14g is coupled to a second frame or supporting frame 16. At each corner of the first frame 14g a screw hole 15 is preferably formed. Although Fig 14C shows the first frame 14g as part of the backlight unit 14, the first frame 14g can act as the supporting frame 16.'

To mount the LCD device 10 to the display case 122 (fig 1)⁸ the LCD device is placed on the inner surface of the display case 122. Then the case 122 and the LCD device are attached to one another by bolts 128⁹ into the screw hole 15 from the back of the display case 122.

As explained above, the structure shown in Figs 4A-4C has an advantage in that the side space such as width d2 for fixing flange 114a of Fig 3B¹⁰, is not needed and the size ratio between the display area and the display case 122 is improved.

20. The following figure (Fig 5 in the Patent) shows the assembly of the LCD module 10 into its case 21 in a laptop computer. Case 21 corresponds to the 'rear case' 123 of two-part prior art display case or housing 122: see Fig 2 above. The other numbered items in Fig 5 are I think, self-explanatory.



⁸ The prior art drawings must be consulted at the same time. Display case 122 is shown in Fig 2 above. This is the housing which encloses the LCD module

⁹ Not shown in Fig 4 but visible in Fig 5 below.

¹⁰ Not shown in the judgment

This diagram does not in fact show the complete display case 122, the front part of the case being missing. For this purpose, the narrative refers back to the housing of the prior art (Fig 2) assembly. Page 10 lines 3-4 reads as follows:

'Although not shown in fig 5, the front case such as shown in Fig 2 is preferably assembled with the case 21 for covering the edges of the LCD device 10.'

The second embodiment of the invention concerns a different type of 'back mounting structure', the other parts being the same as for the first embodiment. Figures 6 and 7 illustrate this for use in the top half of a laptop computer, Fig 6 is a general sectional view in pre-assembled state and Fig 7 shows a detailed partial sectional view of the LCD display device 10 assembled with the case 21.

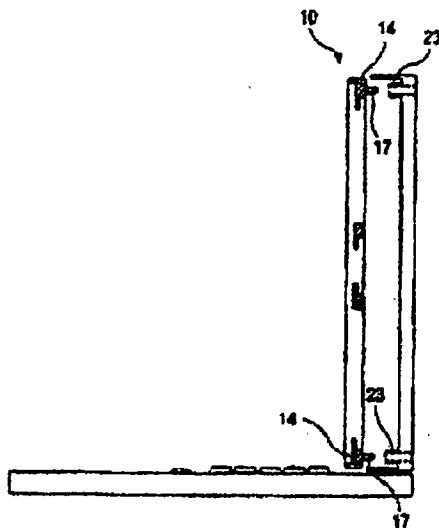


FIG. 6

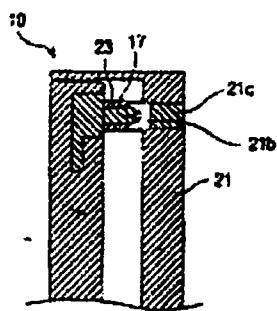


FIG. 7

In this embodiment the fixing is effected by snaps or latch fasteners 17 which engage with a stepped portion of the rib 23 in the case 21. The description reads thus:

' At the rear surface of the backlight device 14 of the LCD device 10, the fasteners 17 such as hooks made of plastics are formed and the case 21 has corresponding ribs 23.'

The Claims

21. Claims 1,30,34,40 and 44 are alleged to be independently valid. Claims 34-39, 44.46 and 47 are alleged to be infringed by the CCTV monitor and claims 34,35,38 39, 46 and 47 are alleged to be infringed by the VX 2000 monitor. Thus the only independently valid claims which are alleged to be infringed are 34 and 44- claim 44 being cited against the CCTV monitor only. Claims 1-33 and 45 are concerned with portable computers while claims 34 to 44 46 and 47 are concerned with flat display devices. In other words the latter claims are concerned with monitors and similar devices which are not necessarily connected to portable computers. In this judgment, I need only consider claims 34 and 44.
- 22 In practice, interest has almost entirely focussed on claim 34 as proposed to be amended. I have set out this claim below, the words in *italics* being those whose addition is sought by amendment, those underlined being those proposed to be deleted.
- 23 Claim 34 (as broken down by counsel at trial) reads as follows:

A flat panel display device capable of being mounted to a housing *comprising a front housing part and a rear housing part, the flat panel display device not being fixed to the front housing part* the flat panel display device comprising:

A backlight unit including a first frame having a fastening part at a rear surface of the first frame;
A flat panel display adjacent to the backlight unit; and
A second frame

Wherein the flat panel display is between the first frame and the second frame the first frame of the backlight unit capable of being is fixed to the housing through the fastening part at the rear surface of the first frame
And the fastening part is behind the flat panel display.

- 24 I have mentioned that certain other claims were in issue. However, in this judgment I need say no more about them than this:

- (i) Claims 1 and 30 are alleged to be invalid and claim the same invention as claim 34 in the context of a portable computer. As regards validity, these claims therefore stand or fall with claim 34.
- (ii) Dependent claim 40 is alleged to be independently valid. It excludes flat panel display devices which have elements, other than the display panel and the second frame which are visible from in front. It provides that:

- (a) The flat panel display device according to any one of claims 34 to 39 and
- (b) wherein the flat panel display device only shows the flat panel display and the second frame when viewed from the viewing direction of the display.

However since the presence of a front housing is now an essential part of the invention, I cannot really envisage what this claim is intended to cover. In any event, the claim stands or falls with claim 34.

- (iv) Claim 44 is more important as it is alleged to be both independently valid and infringed (by the CCTV monitor). Furthermore, a number of amendments have been proposed to it. I make the following observations regarding this claim.
 - (v) First, unlike claim 34, claim 44 requires all the fastening parts at the rear surface of the first frame to be located behind the flat panel display ('*the or each fastening part is behind the flat panel display*'). This part of the claim was relied on by Mr Tappin to bolster his argument on the scope of antecedent claim 34 where the fixing parts of that claim (on which it is *not* dependent) are to be located. Had this claim been dependent on claim 34, its utility for Mr Tappin's purpose might have been relevant – but it is not so dependent.
 - (vi) Next, the flat panel display is to be '*fixed to a housing of a data processing device*'. Mr Meade said that since a monitor was not 'a data processing device' (unlike the computer itself); thus monitors automatically fell without its ambit. Finally, since the claim is not limited by a backlight, it covers the use of e.g. a PDP display module.
- 25 Before considering Tatung's objection to some of the amendments, I must first consider the skilled addressee of the Patent and the common general knowledge with which he is deemed to have been imbued at its priority date.

The Skilled Addressee

- 26 I was not addressed at any length by counsel on the law relating either to the skilled addressee or the common general knowledge. It was I think assumed (correctly) that I was familiar enough with these matters. For the record however, the principles which I have followed have been conveniently set out in Terrell on the Law of Patents, 15th Edn , §§ 6.25-6.28.
- 27 In the end, there seemed little difference between the parties as to the identity of the notional addressee. see Talesfore 5/1, §3 and Brinkerhoff 7/1, §7. The notional addressee would be a senior engineer that is, a person with a degree in industrial design or perhaps mechanical engineering having also some experience of product design in the field of flat screen displays. He would if necessary be able to consult with an engineer from an LCD module manufacturer concerning his requirements: see § 9 above. The addressee is thus seen as a hybrid: a notional person with suitable qualification both in the manufacturing and the design areas of the flat screen display industry. When I first read into this case, I felt that this might lead to a notional person with too high a qualification ('senior engineer'). However in the light of the evidence of the experts (who were both from the design side) and having heard Counsel, I shall leave the matter as I have just recorded it.

- 28 Mr Meade raised an associated point on this topic which is relevant to Mr Tappin's '*Dyson* style mindset': see §9 above. He said that the skilled addressee should obviously be able to put the invention into effect without undue difficulty, otherwise the Patent would be bad for insufficiency¹¹. Thus he said, at the priority date, the addressee should be assumed to have been able to lay hands on an LCD module with rear fastening capability - *if he wanted one*. And he might well want one as a result of considering an item of prior art –such as a device described in one of the citations in this case, so Mr Meade suggested. I agree. In this connection, there is in fact evidence that manufacturers of LCD modules could be persuaded by a designer to move the fixing points of the modules to (for example) the rear from the side, providing the quantities in demand were large enough: see Talesfore D2/193-196. Mr Brinkerhoff was of much the same view, believing that Fujitsu, a module manufacturer, could do 'just about anything they want': D3/359-361. It seems to boil down to a question of money in the end. I shall return to this when I come to validity but I consider that having the qualifications mentioned above, the persistent skilled man should be deemed to have been able to get the module he required for a job and not to be held merrily to accept what was going as a *fait accompli*.

Common General Knowledge

- 29 I have touched on this topic in an earlier section on introductory technical background. The experts have provided fairly uncontroversial accounts of the evolution of display systems in the 1990s and of the common general knowledge. This includes evidence relating to both Cathode Ray Tube (CRT) and Flat Panel Display (FPD) devices. Turning to FPDs, it was common ground that LCD modules with side fixings were articles of commerce at the priority date and how they were assembled and worked was also part of the common general knowledge. Similarly were the screws and other fixings with which they were mounted, the electrical connections and suchlike: see Talesfore D1/142 and Brinkerhoff D3/337. In fact, it was common ground that the pre-characterising part of claim 34 was also common general knowledge.
- 30 With regard to common general knowledge relating to the design of products incorporating FPDs (typically notebook computers) at the priority date, I believe that the following passage from Mr Brinkerhoff's report (7/1/§§ 8.3, 8.4, 8.7) fairly summarises the position:

'A primary driving factor considered in display design was size. This was particularly so in notebook computers. A thin profile (depth of thickness) and narrow display perimeter (bezel) were highly desirable because they allowed maximisation of the display area in a minimum volume... Pushing the display area closer to the edge of the available space increased the usefulness of the appliance... The LCD module manufacturers continuously evolved their offerings to optimise size factors primarily for the notebook computer industry... Shrinking the overall package design was of prime interest to the designer.'

However, the design requirements for monitors and notebook computers were not quite the same. For example, the rear surface of monitors being invisible, did not have to be designed or 'styled' with aesthetic requirements in mind.

¹¹ Which was originally pleaded but not argued.

- 31 I must next return to the glass or LCD panel (as it is called in the narrative), since the state of the common general knowledge with regard to this is of crucial importance to one of the amendments. It was generally known that the LCD panel or glass (see §§ 8 and 10 above) was manufactured so as to have two zones: first, there is a central active zone which occupies the greater part of the glass and within which intelligible information could be displayed; this is the 'display area' and what one sees there is the 'display'. Secondly, there is an inactive continuous peripheral zone uniformly surrounding the display area but which had no display capability. Furthermore, modules were sold with their fixing or support frames in place. Workers in the field did not take the glass apart¹². I am satisfied that it was also common general knowledge that in the modules of commerce there was always a small gap between the edge of the glass (i.e. adjacent the inactive periphery) and the support frame that surrounded it and that users had no idea of exactly how far the glass extended under the frame¹³. I can find no evidence that either the dimensions of the inactive periphery or that of the gap between the glass and the fixing or the support frame or that of the overlap of the support frame itself, all of which could affect the display area, were standard - or were even generally known¹⁴. Mr Brinkerhoff said, 'it [i.e. the gap] can vary considerably'¹⁵ and Mr Talesfore said 'It will vary from one module to another'¹⁶. That I think, is as about much as the skilled man would have known about such matters.
- 32 It was well known that LCD panels were (as their name suggests) made of glass and that these parts of the modules were delicate. The skilled man would therefore want to use a mounting procedure that did not expose the glass to the risk of damage. Finally, as noted, the provision of mutually fastenable two-part housings for the module was standard practice at the time.

The Expert Witnesses

- 33 Both witnesses came from the same town, Campbell, California and both were creative and experienced product designers. I will say at the outset that I found both experts to have been doing their best to assist the Court. Counsel accepted the integrity of the experts but mutually criticised each others' expert, as I shall presently describe.

For the claimants: Mr Nicholas Talesfore

Mr Talesfore is the proprietor of a design company (ID-3D Design) which has been in business since 1982 'carrying out both industrial design and mechanical design services in respect of over 200 products for various companies in the US.' This work covers everything from styling (i.e. developing the appearance of products having regard to aesthetic considerations) to 'mechanical' design which has primary regard to technical considerations inherent in the application in hand –such as the required disposition of internal components. He has a BSc in industrial design and prior to forming his own design company, from 1969 onwards had a wealth of varied experience as an industrial designer.

¹² Talesfore D2/184

¹³ Illustrated in X3. And see Brinkerhoff 3/441 and Talesfore D2/183

¹⁴ In any event, one is considering relatively small dimensions, matters of a few millimetres at most.

¹⁵ D3/441

¹⁶ A propos X3, D2/205-206

For the defendants: Mr Mark Brinkerhoff

Mr Brinkerhoff is also the head of an independent company which is engaged in product design and mechanical engineering. This company (Fusion Design) provides 'industrial design, mechanical engineering prototyping and production line development services to mechanically-based product companies'. He is a Bachelor of Science in Mechanical Engineering (1977) and after three years with Hewlett Packard as a manufacturing engineer involved in fabrication and assembly of products (1983-1986) he had a variety of experience in industry as a designer of products with particular interest I think, in the technical side of the field. A point stressed by Mr Tappin was that Mr Brinkendorf had a number of patents to his name.

- 34 Both experts had some experience in integrating (i.e. mounting) CRTs and FPDs (including those operating with small LCDs) into various products for various end uses.
- 35 Mr Tappin criticised Mr Birkendorff's evidence on the issue of obviousness (only) on two traditional grounds. First it was said that he was not only far too creative to be of concrete assistance to the court in assessing the issue of obviousness but that in evidence he actually envisaged what he and his colleagues would be likely to do at his company, Fusion Design, as a result of a commission. Secondly Mr Tappin said that some of his evidence was based on information he had acquired *after* the priority date; and so I would add, was Mr Talisfore's. In fact, both counsel also criticised each others' witnesses for their supposed lack of practical experience in very the subject matter of the Patent. As to the latter, I am frankly not surprised. As I have already said, by consent (and somewhat to my surprise), the parties agreed that the skilled man was a considerable specialist, a senior engineer. I say this because from time to time in this case, it seems to have been quite forgotten that this really is not a 'high technology' patent; it is a patent for mounting FPDs into display devices.
- 36 I reject these criticisms since ultimately they trespass on the now well-established view the courts should take to expert witnesses in patent cases: see *Technip France SA's Patent* [2004] RPC 919 at 926-928 per Jacob LJ¹⁷. As to evidence given as to what happened after the priority date, in my experience this often happens in such cases and it is indeed in theory wrong to entertain such evidence. But there must I think be some scope for flexibility. I doubt if the problem much matters if the technology has not materially changed since the priority date. And that I think, was the position here¹⁸

Construction: General observations.

- 37 The pervasive requirement for patent specifications to be construed by the skilled addressee in a purposive manner is so well known that I need not elaborate on it: see *Catnic Components Ltd v Hill & Smith Ltd* [1982] RPC 183 at 243. I have said that the

¹⁷ 'My witness is more nerd-like than yours'.

¹⁸ See for example Talisfore D2/162

Patent has been drafted in ‘problem/solution’ form. As one would expect, the practical advantage which LG promises has been clearly stated in the specification; that is, the elimination of unnecessary side space through re-positioning the fixing means from the side of the module to its rear. However none of the claims are limited by reference to this advantage. Claims do not of course have to be so limited but in a case like this, it would in my view be wrong to think that the skilled man would not have this one and only benefit well in mind when trying to understand the drawings and reading the narrative and claims. Therefore, in my judgement, any construction of the claims or of any of their integers which did not pay tribute to this one advantage, would be perverse.

38 I was not specifically addressed by counsel on the law of construction of patents. In any event, I believe, there was no difference of approach between counsel on this topic. For the avoidance of doubt as to my approach to construction, I should perhaps briefly record what I have done.

39 I begin with Article 69 EPC which provides as follows:

‘The extent of protection conferred by a European patent ...shall be determined by the terms of the claim...Nevertheless, the description and drawings shall be used to interpret the claims.’

40 Then I have of course applied the Protocol on the Interpretation of this Article the terms of which are so well-known that I need not set them out. Next, I have heeded the observations of the higher courts in two recent cases in particular, the first being the guidance given by the House of Lords in *Kirin-Amgen Inc v Hoechst Marion Roussel Ltd* [2005] RPC 9. In that case, Lord Hoffmann said at § 32:

‘ Construction, whether of a patent or any other document, is of course not directly concerned with what the author meant to say. There is no window into the mind of the patentee....Construction is objective in the sense that it is concerned with what a reasonable person to whom the utterance was addressed would have understood the author to be using the words to mean. Notice however, that it is not , as is sometimes said, “the meaning of the words the author used”, but rather what the notional addressee would have understood the *author* to mean by using those words.”

41 The language actually chosen is thus “ of critical importance”. I have also taken aboard Jacob LJ’s concise summary of the correct approach to construction which was stated in *Technip France SA’s Patent, supra* at §41 (less sub-paragraph (e) which was criticised by the House of Lords in *Amgen* (supra)). Further as Jacob LJ observed in *Technip*: ‘Pedantry and patents are incompatible.’

The Amendments

General considerations

42 I have mentioned that LG sought to amend the Patent during the course of the proceedings. The possibility of doing this is catered for procedurally by the Patents Act 1977 (‘the Act’), section 75 and substantively, by section 76(3) of the same Act (‘Amendment of ..patents not to include additional matter’). The pleadings and evidence

are contained in a separate bundle (Bundle 4) which was not referred to as such at the hearing. The parties' principal interest was directed to the amendments made to the last phrase proposed to be added to claim 34: '*and the fastening part is behind the flat panel display*'. Tatung objected to the proposed amendments on the ground of added matter and additionally, against the last phrase of claim 34 on the ground that the word '*behind*' lacked clarity.

- 43 As to the law, counsel were agreed that test for extension of disclosure was settled by Aldous J in *Bonzel v Intervention Ltd (No 3)* [1991] RPC 553 at 574 where he said:

"The decision on whether there was an extension of disclosure must be made on a comparison of the two documents read through the eyes of a skilled addressee. The task of the court is threefold:

- (a) To ascertain through the eyes of the skilled addressee what is disclosed, both explicitly and implicitly in the application,
- (b) To do the same in respect of the patent as granted,
- (c) To compare the two disclosures and decide whether any subject matter relevant to the invention has been added whether by deletion or addition.

The comparison is strict in the sense that subject matter will be added unless such matter is clearly and unambiguously disclosed in the application either explicitly or implicitly."

The test said Mr Meade, is no less rigorous than the traditional novelty test. That is I believe, the correct approach¹⁹.

- 44 As for the requirement for clarity in a proposed amendment, in addition to complying with section 76, the proposed amendments must I believe, continue to comply with the requirements of section 14(5) of the Act and in particular, that the claims should be clear and concise. Where an amendment has about it a vague or imprecise quality such as to create uncertainty in the mind of the skilled reader as to what it really means, it will be refused. Patents like injunctions, stop people doing things and those affected are therefore entitled to know with as much precision as the subject matter admits of, where the boundaries are.
- 45 I shall now proceed to consider the proposed amendments. But before so doing, I would just note that the proposed amendments all involve language not present in any original dependent claim. Moreover, the last integer to proposed claim 34, which as will be seen, is the most important amendment for LG to secure, makes use of language which is not present in the specification *at all*; it relies on information to be gleaned from the drawings to support it. This is an unusual situation and one which I think, calls for particular scrutiny as regards the need for clarity.
- 46 I need only consider the amendments proposed to claim 34 since I was hardly addressed on any others. I shall go first to the pleadings. Tatung pleads that the proposed amendments add matter and have neither textual nor substantive support in the specification. There is also the allegation of lack of clarity. LG's statement in reply to Tatung's grounds of opposition is at 4/4. There are two paragraphs which are of particular

¹⁹ See also Terrell §9.09_9.9.16. and the decision of the Enlarged Board of Appeal G2/98 [2002] EPOR 167

importance in the light of what follows. First, it is generally denied that the proposed amendments add matter. In particular:

3(1) There is support in the Patent as applied for and granted for the feature requiring the fastening part(s) or elements to be behind the flat panel *display*. Each of Figs 4-16 of the Patent (which illustrate the invention) show such an arrangement. The reader of the Patent would appreciate from the specification that such an arrangement was *necessary* in order to achieve the objects of the invention set out at p3 14-page line 10 ..and to attain the result stated at page 14 lines 6-8... The addition of the said limitation does not require a different construction to be given to the terms 'rear surface of the display panel/first frame'. [Emphasis added]

In other words, LG now say that such an arrangement was *necessary* in order to eliminate the use of unnecessary 'side space'. In spite therefore of what has been stated in the Patent, for amendment purposes, it is apparently no part of the invention to re-position the fixing means either to the rear of the first frame, or to the rear of the space between the glass and that frame or even to the rear of the inactive periphery of the glass. The fixing means must be precisely behind the *display*. As to the allegation of lack of clarity, LG's response is as follows:

4. It is denied that the proposed amendments lack clarity as alleged....For the avoidance of doubt, the limitation that the fastening part be behind the *display panel* means (as is apparent to any reader of the Patent) that the fastening part be located rearwardly of and not displaced sideways of the *display panel*. [Emphasis added]

Note the use of the phrase '*display panel*' and not the phrase '*flat panel display*' used in §3(1) of the pleading. According to these paragraphs taken together, the inventive feature would therefore seem to be the placing of the fixing parts behind *either* the central '*display*' or the '*display panel*'. These are not however the same areas because of the presence of the inactive (and covered) periphery around the glass-as the skilled man would appreciate. This is neither a carping nor a semantic comment. One is dealing with relatively small dimensions certainly, but by its construction, LG has for some reason already eliminated from the scope of the claim the possible placing of the fastening part on the back surface of the first frame and also overlapping the space between the glass and the first frame. I have been puzzled by this and in any event cannot find any justification for any of these distinctions in the narrative.

- 47 It will be apparent that in truth, the relevant 'appreciation' which it is alleged that the skilled reader will obtain from the Patent is essentially to be drawn from the drawings; words or passages in the narrative seem hardly to be relied upon as *such* to ground the amendments. What counts is the deduction which the skilled man is said to be in a position to draw from an examination of the drawings. In my view this gives rise to a problem for LG. The court's approach to construction of words has already been noted. But what does one do about construing drawings? Again the House of Lords has provided guidance. In *C. van der Lely v Bamfords Ltd* [1963] RPC 61²⁰ an issue arose as to whether what was shown in a photograph was an anticipation. At page 71, Lord Reid said this:

'Lawyers are expected to be experts in the use of the English language but we are not experts in the interpretation of photographs. The question is what the eye of the man with the

²⁰ Not cited at the hearing

appropriate engineering skill and experience would see in the photograph and that appears to me to be a matter for evidence. Where the evidence is contradictory the judge must decide. But the judge ought not in my opinion, to attempt to read or construe the photograph himself; he looks at photograph in determining which of the explanations given by the witnesses appears to be most worthy of acceptance.'

- 48 What Lord Reid said of photographs is in my view equally applicable to drawings in a patent specification when relevant explanatory narrative therein is laconic or even absent. In such cases, it is the expert evidence which counts.

The proposed amendments

- 49 The first of the proposed amendments is to the pre-characterising part of claim 34. This was referred to as the '**two part housing**' amendment. There are in fact two aspects to this: the first is the requirement for two housing 'parts', front and rear; the second is the requirement that the 'flat panel display device' should *not* be fixed to the front housing.
- 50 For the purposes of finding antecedent for the entirety of the amendment sought, Mr Tappin directed me to the passages relating to the construction of the Fig 2 laptop computer of the prior art (see above) coupled with the passage in the narrative describing the first embodiment of the invention which reads:

'Although not shown in Fig 5, the front case such as shown in Fig 2 is preferably assembled with the case 21 for covering the edges of the LCD device 10.' [p 10, ll 3-4].

In relation to the prior art, that is Figs 1 and 2, the two parts are called rear and front 'cases' or 'frames' which in my view would be considered synonymous with the word 'housing' by the skilled reader. 'Housing' relates to the need to provide an enclosure (or case) which protects the relatively delicate LCD module within. The word was in fact in the claim from the start. Although the passage cited uses the word 'preferably' I think there is here sufficient antecedent to justify this part of the first proposed amendment.

51. Mr Meade argued that if this is so, the amendment reads only onto a laptop or notebook computer and not onto a stand-alone monitor. I disagree. So understood, 'housing' is apt in context to cover any two-part means for *securely mounting and protecting* the LCD module within. The word is being used in a general technical (but not cosmetic) sense. No doubt housings for the rear of laptop computers would be different in design to housings for the rear of monitors. But the latter could still be a 'housing' in my view.

52. I am however concerned with the proposal that the module should *not* be connected to the front housing. By the proposed amendment, this now becomes an essential feature of the claim. The antecedent disclosure referred to above does not *require* this to be so; it may or may not be so connected²¹. Moreover, this feature has nothing to do with the achievement of the object of the invention. In the circumstances, I do not believe the skilled addressee would find clear and unmistakable directions in the unamended specification *not* to fix the LCD module to the front housing. So that part of the first amendment is in my view, not allowable.

²¹ See Brinkerhoff D3 394-395

53 Substantial time was taken with the second of the proposed major amendments: 'behind the flat panel display'. It will be seen that this amendment is a limitation on the previous phrase '*...through the fastening part at the rear surface of the first frame..*' with which the claim originally ended. No problem arose over the latter phrase. The objection to the amendment was not only to added matter but also to the *uncertainty* which Mr Meade said would arise over just where 'behind' might be - or put another way, what might be the planar extent of 'the flat panel display': Was it the flat panel display panel (i.e. the glass) or just the display area of the panel.

54. Mr Tappin submitted that to the skilled man, fixing 'behind...the display' clearly means not only fixing behind the glass of the LCD module, but also behind its display area or possibly overlapping its inactive periphery. In response, Mr Meade first noted that in the Patent, the glass is actually called the 'panel' which is a term which could have been used in the proposed amendment but for some reason, was not used. So also in my view could the term 'display area', which is the phrase used in the narrative to denote the lesser but more important area of the glass. Moreover, he noted that there is nothing in the Patent which makes it compulsory to put the fastening part exactly behind either the glass or any part of it. He suggested that to the skilled reader, a fair reading of the narrative simply requires the fastening part to be placed 'anywhere to the rear of the LCD module' i.e. behind the first frame, behind the inactive area of the glass or behind the display area. The promise of the invention is fulfilled he argued, in any of these locations-or he added, in any combination of spatial overlap. Mr Tappin's construction on the other hand requires *exclusion* of the situation where the fastening part is behind either the first frame or the inactive periphery of the glass - or the space in between.

55. Mr Meade also prays in aid the evidence that those using modules neither knew nor cared where the 'glass' area actually begins or ends underneath the support frame in the 'slabs' which they buy in: see § 31 above. In addition, the dimension between the glass and the support frame is of the order of millimetres: see also § 31 above. Whatever be the impact of the phrase upon the skilled reader, one thing is settled: that in this case, the skilled reader must find his clear and unambiguous directions for such *compulsory* 'fixing' geometry from the drawings alone-i.e. Figs 4A, 4B, 10 and 11, since there is not a word about the requirement of the proposed amendment in the body of the specification. In my judgement, Mr Meade is right. An examination of the drawings for this limitation as to location of the fastening part requires I think, more the eye of faith than the untutored eye of the man skilled in the art.

56 In the first place, none of these drawings are to scale- in patent specifications they seldom are anyway. Secondly, to justify an amendment having such precise meaning, what is visible to the eye of the skilled reader cannot in my view admit of such marginal possibilities as the fixing being 'just in' or being 'partly within' the glass area or a part thereof. That is not the *Bonzel* approach. Thirdly, since this has now become a compulsory limitation, Mr Tappin's construction of 'behind', must also chime with the solution to the problem allegedly solved by the invention; but so I believe, does Mr Meade's. So for that reason too, I cannot think that the skilled addressee would derive clear and unambiguous instruction from the drawings alone to appreciate the necessity for such fixing geometry. Let me elaborate a little on the foregoing.

57 I shall first consider the consequences of the drawings being schematic in character. Taking the first embodiment, it will be recalled that the screw holes 15 are said to be at

'each corner of the frame'. Obviously, this is imprecise wording ill suits a precise location. To illustrate the point, in closing Mr Meade produced a transparent overlay of Fig 4A [X8] and invited me to place it over the back of Fig 4B (which is indeed the rear of Fig 4A). When this was done, the shaded area of the LCD panel *just touched* the two screw holes 15 at the top of the first frame 14g and missed them altogether at the bottom. Moreover it is quite arguable from mere inspection, that the fixing means in Figs 4C, 5 and 9 (and 10) are *not* behind the LCD panel/glass at all-though they *are* behind the LCD module as a whole. Furthermore, having regard to the peripheral space between the LCD module and the frame holding the sandwich together (see §31 above) and the inactive periphery of the glass, what lies behind the rear fixing position may be uncertain since such units are bought-in. It is true that some drawings do show geometry which supports Mr Tappin's 'behind the active part of the glass' location. Yet other drawings seem to go one way or the other. This does not satisfy the requirement for clear and unmistakable directions.

- 58 The expert evidence on this point (which according to Lord Reid in *van der Lely* (*supra*) is essential) did not throw much light on the situation. Mr Brinkerhoff considered that the fastenings disclosed in the Patent were without qualification, behind the *module*: D3/404-410. Thus, he clearly thought that the fixing points for the fourth embodiment (figures 9 and 10) were behind the *module*: D3/400-401. Mr Talesfore was uncertain that one could draw any firm conclusion on the basis of the drawings for the first embodiment: D2/150-151. Mr Brinkerhoff felt that in other cases one could not say for sure one way or the other where exactly the fastenings were to be placed: D3/387-388. Significantly, Mr Talesfore agreed that for the purpose of the invention, it made no difference where the fastenings were located, just so they were to the rear of the module.

- 59 There is a further point on the principal amendments. Tatung have also pleaded that:

'There is no or no sufficient disclosure ...of the combinations of features presented by the proposed amended independent claims and/or such combinations are nowhere in the specification stated to be part of the invention. Those features have beenformed into new combinations for the first time in the context of the proposed amendments.'

60. In the light of my finding relating to the 'two part housing' amendment, I do not think this objection as such is made out. There is a connection in the narrative between figures 2 (prior art) and 5 (first embodiment).

Conclusion on the amendments.

61. The burden is upon LG to satisfy me that they have discharged the statutory requirements regarding their proposed amendments. In my judgment, they have not done so. I have no doubt that the last integer to claim 34 as proposed to be amended adds matter to the claim and is thus unallowable. As I have said, the test is a strict one.
62. But there is a further important reason for refusing to allow this amendment and that is that in the light of Mr Tappin's submissions, it would result in a claim that lacked clarity. This case has been dominated in both argument and cross-examination by the meaning of the word 'behind' in the proposed amendment-and its consequences in the rest of the case. None of this debate was contrived. If the resolution of the meaning of this phrase gave such trouble to the experienced counsel who argued it, pity the man skilled in the art grappling with the proper meaning of this word hereafter let alone a man of business.

During this debate, I was at times reminded of some salutary words of Lawton LJ in *Daikin Kogyo's Appn* [1974] RPC 559 at 581 *a propos* a similar requirement for clarity in the Patents Act 1949 :

“ The opponents' claim 21 is so obscure as to its meaning that it is incapable of being 'a claim defining the scope of the invention claimed'.Claim 21 is set out in 21 words and two figures. Mr Blanco White on behalf of the opponents took about five hours over his submission as to its meaning. That is a very long time to take over what is intended to be a definition. Subsection (4) of [section 4] provides that 'claims...must be clear and succinct'. Claim 21 may have been succinct; it certainly was not clear.

I have been emboldened to speak out because it seems likely that I am in the same position of many in or connected with industry who have to read specifications as part of their working lives. Any of those people reading claim 21 would be likely to be as confused as I was as to its meaning. I inferred from what counsel said that often claims were drafted as they were...in order to save words. So be it; but if the result is unintelligible to those who have to read specifications, only lawyers with a taste for semantics will get either profit or pleasure from such drafting. Those who draft in this way should remind themselves of the statutory requirement that specifications *must* be clear.”

63. Since Mr Tappin told me that the action would fail if the amendments were not allowed, I shall therefore have to dismiss the action. I asked Mr Meade whether in such circumstances, Tatung was interested in pursuing its counterclaim. They were not interested, he said. The counterclaim evidently had the effect as so often happens in patent infringement actions, of forcing the patentee either to amend or at least to 'feel the squeeze' on construction of the claims-or both.

The remainder of the case on the hypothesis that the amendments are allowable

64. In deference to the arguments which counsel directed to the issues of infringement and validity and in case the matter goes further and should I be found to have been wrong on the allowability of the amendments, I shall next deal with those further matters, albeit somewhat briefly. Before doing so however I must return to claim 34 in order to construe the meaning of some further terms of that claim.

- (i) '*A first frame*', '*a second frame*' and '*the rear surface of the first frame*' A number of frames are mentioned in the narrative and there was debate about the meaning of the word. Mr Tappin submitted that 'frame' ordinarily means a case or border partially enclosing something, thereby providing some support to it. Typically one would think of say, a picture frame. But context cannot be ignored in construing patents. Mr Tappin then submitted that in context it is not necessary for the first frame to be the sort of component the skilled man would have expected to find at the rear of an LCD module as supplied by the manufacturer. Mr Meade disagrees. He says that the first frame would be present on a unit bought from the manufacturer for whatever application.
- (ii) Contextual confusion arises in this regard when one reads the Patent. In relation to the prior art device, the two-part 'housing' (which is a word not in fact used in the narrative) is referred to as the rear case or *frame* and the front case or *frame* (see §

10 Fig 2 items 121 and 123 respectively). Together the two cases or ‘frames’ are called a ‘display case’. This is not a usage in accordance with Mr Tappin’s definition of ‘frame’. The LCD module is also said to have a ‘surrounding frame’ 136. In Figs 4 A-C, which illustrate the first embodiment of the invention, the frame 16 is described as a ‘supporting frame’ and also as a ‘second frame’. It is coupled to the first frame 14g which is preferably to be made of plastic. And it is also part of the backlight unit 14. Also, the first frame itself can act as the supporting frame 16.

- (iii) Though lacking consistency, the position appears to be this. Mr Tappin’s definition reads well in relation to the second frame. In relation to the first frame however some qualification is needed. According to claim 34, this frame must also have a *surface* which carries the ‘fastening part’. The ‘surface’ is visible in the drawings: see 14g which via Fig 1 (p 9, ll 9-12) is mounted ‘on the inner surface of the display case 122’. In relation to Fig 5, the narrative speaks of the ‘inner surface of the case 21’ and of its outer ‘surface’. In the second embodiment (see § 20 above) the position is clearer: ‘at the rear surface of the backlight device 14²² of the LCD device 10’ where mounting holes 15a are formed. Thus the ‘rear surface’ of the first frame mentioned in claim 34, would in my judgment be understood by the skilled reader (i) to be a complete (though not necessarily attractive) covering of the rear of the LCD module – in the sense of the viewing direction and not just a peripheral ‘picture frame’ and (ii) more importantly, the first frame must not have any fixing means which demanded ‘unnecessary side space for mounting the LCD device of the computer’ (page 4, ll 6-8)
- (iv) ‘*The first frame of the backlight unit is fixed to the housing through the fastening part at the rear surface of the first frame*’. Mr Meade submitted that the proper construction of this phrase made fixing through the rear surface of the first frame the only such ‘fixing’ contemplated in the claim. Thus any *additional* fixing which was not effected at a fastening part on the rear surface of the first frame a fortiori by making use of a lateral fixing flange of some sort, took the unit outside the claim. To construe the claim otherwise he said, would make a nonsense of the alleged invention. Mr Tappin disagreed; these words do not forbid side flanges for fixing. He said that Mr Meade’s submission demanded the notional (but compulsory) addition of the word ‘only’ to be present before the word ‘through’; it was absent. The skilled man would thus appreciate that even if only *some* of the fixing was arranged at the ‘rear surface’, the claim would be satisfied. I reject Mr Tappin’s submission since it ignores the requirement of purposive construction. The teaching of the Patent is clear. There should be no side fixing via the first frame; all the fixing is to take place at the *rear surface* of the first frame. That is the very purpose of the Patent. I would add that ‘fastening part’ must be a collective term allowing for a variety of fastening parts c.f. dependent claims 35-37.
- (v) ‘*behind the flat panel display*’. I have already considered this phrase in connection with the proposed amendment. On the assumption that the amendment is nevertheless allowable, the skilled man would give ‘behind’ its ordinary English

²² Called the ‘backlight unit’ 14 in relation to the first embodiment

meaning: i.e. 'anywhere to the rear of the flat panel display' –and certainly not to the side. I have not yet formally construed 'display'. However, this is a word which has been used earlier in the claim- though it is not I think used anywhere in the body of the specification where, as noted, the phrase 'LCD panel' is used to identify what is adjacent the backlight. The panel has the two parts, active and inactive. The 'display' in my judgment would be understood to refer only to the active part of the glass, that is, where the visual presentation which the user sees, takes place.

- (vi) '*a data processing device*' (claim 44). This must be understood in context. The relevant electrical connection to the flat screen module receives video signals from any source that causes the display elements (e.g. pixels) to react in a way which engenders a related image visible to a viewer. The device functions in this respect in just the same way as the CRT in a CRT monitor (or indeed in a television). None of these devices in my view could conceivably be called ' data processing device'. I appreciate that the flat screen display device receives signals which may emanate from a data processing device but they may equally emanate in practice from a CCTV camera.

Infringement

65. I have already identified the alleged infringing units in §2 above. Product descriptions with accompanying drawings of the CCTV monitor and of the VX 2000 monitor are to be found at 9/6 and 9/5 respectively. Further photographs with colour coding are at 9/9 and 9/8 respectively. A key for the latter has been provided at 2/22. Samples of the products in partial knock-down condition were available in court and I have also taken the opportunity of examining these samples at the conclusion of the trial. In what follows, the letters used refer to items shown in the photographs attached to the product descriptions.

66. The VX 2000 monitor: how is it made up?

67. This product is a 20' LCD desk-top monitor on a stand which in the words of the product description, 'is designed to receive video information signals from a PC or other computer and display the related image on the screen'. This monitor is alleged to infringe claim 34 of the Patent.

68. Viewed from the rear, D is what one would see attached to stand E. It is a smooth moulded plastic cover or rear housing covering the entire monitor. It has four holes at its rear which correspond to the fixing holes in the stand E. Component C, which may also be loosely described as an internal rear tray, carries a circuit board and electrical connections; it also has four fixing holes corresponding to those in components D and E. These holes are however threaded to engage screws. When assembled, component C lies within D. Four screws pass from the holes in the stand E through the holes in the back cover and are captured and secured in the threaded holes in component C. This is how the monitor is fixed securely to its stand.

69. Component B is a conventional LCD module and this is fitted into Component C. Its front, which is what the viewer sees, carries four through holes (two at the top and two at

the bottom). These four through holes are formed in *side flanges* of the LCD module. Component B is placed inside the tray C and is attached thereto via the four holes previously mentioned with screws which pass from the front engaging with corresponding threaded stand-offs formed in C.

70. Component A is the bezel. It is provided with sets of fixing points, eight to the side four to the top and three to the bottom. Component A engages and is secured to component D with hooks and by means of screws.

Does the VX 2000 infringe claim 34?

71. The CCTV fulfils the pre-characterising part of claim 34, the front housing part being component A, the rear housing part being component D. The flat panel display device is not fixed to the front housing part – as was the general practice in the prior art in fact.

72. As for the ‘frames’, when I first considered infringement by the VX 2000 monitor I was at once struck by the fact that the alleged infringement seemed to suffer from the very vice which the Patent seeks to overcome viz. possessing ‘unnecessary sidespace for mounting the LCD device’ (p14, ll6-7). The second frame is part of component B and is item 22 on photograph V 12 (‘metal retainer’). It has four side protrusions having holes for fixing component B to the internal rear tray C with screws. Component C is therefore a prior art first frame and prior art ‘front mounting’ as the Patent calls it²³. The rear tray cannot be construed as the first frame of the claim because it adds side width. There is no question (as was suggested by Mr Tappin) that this monitor ‘infringed badly’. There simply is no infringement.

73. Furthermore, if the ‘fastening part’ is constituted by the continuation of the four holes of the stand E into the threaded holes of component C, only two such holes are ‘behind’ the flat panel display, however ‘display’ may be construed. For this reason also there is no infringement. Furthermore, in truth, these screws fasten the stand to the housing; that is their purpose. It is not to fasten the module to the housing.

74. There is therefore no infringement of claim 34 by the VX 2000 monitor.

The CCTV monitor: how is it made up?

75. This is a 15” monitor for desktop or rack mounting and designed to receive video information signals from a CCTV camera and display the related image on the screen.

76. This product is alleged to infringe both claims 34 and 44. Though it is a flat panel display device, its module is not a ‘data processing device’ (see above). For that reason, I need not further consider infringement of claim 44.

77. Central to this product is a component C (which is a conventional LCD module). On either side of this module (in the ‘landscape sense’) are two detachable mounting brackets which are each attached to C by four horizontal screws. At their corners, the brackets also each incorporate two threaded holes 3 for engagement in the vertical plane. These brackets are of appreciable width (some 3-4 mm). Component C lies within a rear housing

²³ Mr Talesfore accepted that this was so: D2 270/271

(D) and is secured to it by means of screws which pass from the back of component D into the threaded holes 3 in the brackets. Component B is located over the edge of component D from the front and is fixed to it with fixing tabs. Component A is a front bezel which overlies component B. Component A is indirectly fixed to D with Allen screws.

The CCTV monitor :does it infringe claim 34?

78. I shall first make two general observations. The screws in the holes 3 in the brackets contribute to holding the module to which they are attached to the rear housing. Visual examination shows that these brackets add even more sidespace than do the protrusions on the VX 2000 monitor - thus in my view defeating the very purpose of the invention.
79. The module (plus brackets) is not attached to the tray fastenings only at the rear but also by means of the screws at the sides. To fall within the claim, all the fastenings must be 'behind' the flat panel display and not to one or either side of it.
80. Where is the first frame? In my judgment, there is no first frame. Component D is the rear housing and component A (or A and B) is the front housing.
81. Therefore, in my judgment, the CCTV monitor does not infringe claim 34.

Validity

Lack of Novelty: the Law

82. I was not specifically addressed by counsel on this topic. I have followed the classic guidance given by Sachs LJ in *General Tyre & Rubber Co v Firestone Tyre Co* [1972] RPC 4567 at 485²⁴. For anticipation to occur the antecedent document must contain clear and unmistakable directions to do what the patentee has claimed in the claim under consideration.

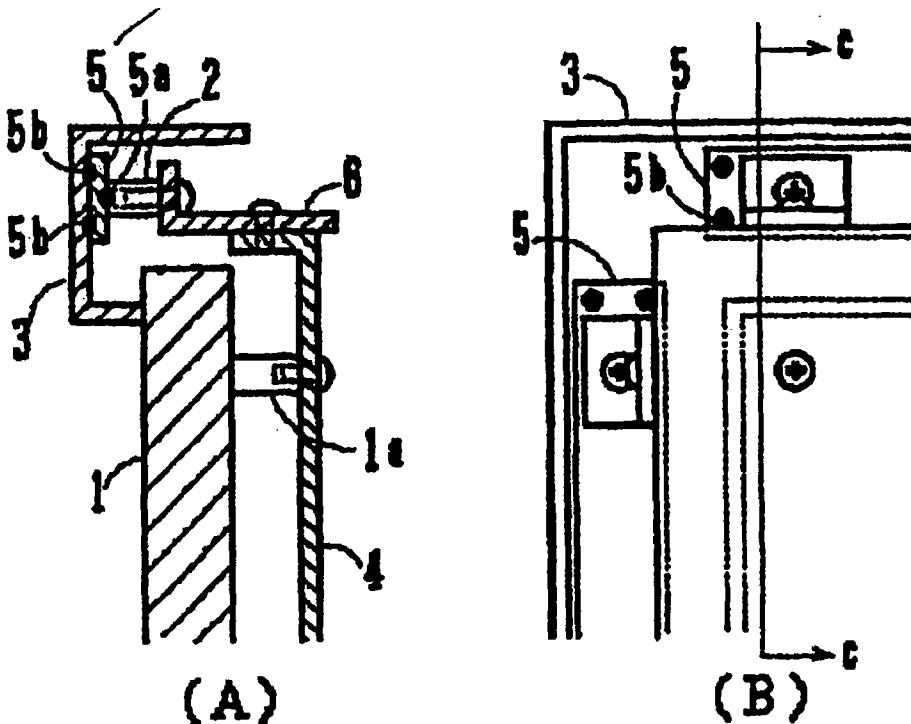
Lack of Novelty: Fujitsu '156 and '358 (July 1997).

83. Save for one lesser point ('housing'), Mr Meade's argument on this part of his case covered both Fujitsu citations simultaneously. I shall therefore consider both together. § 0001 of Fujitsu '156 is entitled '*Field of Industrial Application*' and reads as follows:

'The present invention relates to panel-type displays such as PDPs or LCDs which are used to display television pictures and the like. More particularly, the invention relates to mounting structures of panel-type displays which eliminate strains in the mounting portion'.

84. Though the technical problem addressed by this citation is obviously different to that of the Patent, the field of application is identical viz. the mounting of flat-panel display devices in products. I reproduce below Figs 1A and B of '156, Fig 1B being the third angle projection of Fig 1A.

²⁴ See also Terrell 15th Edn 7.14 – 7.16



85. I shall consider the citation in relation to claim 34. Item 1 is undoubtedly a 'flat panel display device' having 'for example' a PDP - driven display. However, in the light of the general introduction, the narrative is equally applicable to a panel operating by LCD and thus (unlike a PDP unit) it would apply to a device having a backlight. The experts were in agreement about this: Talesfore D2/241 and Brinkerhoff D3/352. The two-part housing is formed by the combination (and fixing) of items 3 ('front frame') and 4 ('rear plate') the former being attached to the latter via boss 2. The display module is not attached to the front housing. Mr Meade stressed that the word 'housing' in the Patent is used in an unqualified way; it need not be pleasing to look at for example. I agree, and in a stand alone monitor, one would not in fact expect the designer to be interested in the appearance of the rear since it is not generally visible to the viewer. Next, the integers of claim 34 which relate to two frames, the backlight unit (see above) and the flat panel display being between the two frames are visibly present in Fujitsu '136. Finally boss 1a is a fastening part mounted on the rear surface of the PDP/LCD module whereby it can be coupled to the rear housing with a screw. In my judgment it is also 'behind' the module as I have construed the word. Arguably, it is also 'behind' the panel/glass²⁵ as Mr Tappin would understand the word 'behind' and glass but not in clear terms behind the display.
86. LG take issue with the very entrée to the above statement of how Fujitsu works, since they say, it starts on a false assumption regarding the structure of the display module, item 1. Mr Tappin relies on the evidence (which I accept) that at the priority date, modules which

²⁵ There was evidence on thisP which I need not resolve: see Talesfore D2244-249 and Brinkerhoff D3/351-354.

were ready made and bought-in would have had side flanges for fixing to the housing (see above). Mr Tappin refers to the preamble of the Patent to confirm this and to the propensity among skilled readers to experience a ‘*Dyson* – type’ mindset in this regard. Item 1 is just a conventional module of the day, he says. He also refers to the description of the prior art in Fujitsu itself: see § 002 Figs 3A and B which also show a rear surface boss (31a) where the same is found in Fig 1 but which he argues, would also be bound to have side-flanges for attachment.

87. I reject Mr Tappin’s submission. On a fair reading of Fujitsu, there is simply no suggestion to use fastening means to the side(s) of the module. Moreover I do not believe that at the priority date in giving Fujitsu a fair reading, the skilled man would have been victim of the degree of stubborn technical prejudice which is implicit in the ‘*Dyson*-style mindset’ argument. Certainly, it was never said by the experts that custom-built modules could not be made at the priority date having unconventional fixing arrangements.
88. In my judgment, for the above reasons, the Fujitsu citations do not destroy the novelty of the Patent on Mr Tappin’s construction of ‘display’. On the other hand, Fujitsu clearly teaches rear mounting of the fixing means which is the only (and I think rather modest) contribution made by the Patent to the art. Thus the citation is relevant to the issue of obviousness - for which it is also pleaded since it makes use of the inventive concept of the Patent – see below

Obviousness: the Law.

89. I was not specifically addressed on this subject and again I did not detect dispute between the parties as to the principles to be applied. The burden is of course on Tatung to make good this objection. The approach to obviousness which I shall adopt is the fourfold, structured approach proposed by Oliver LJ in *Windsurfing International v Tabur Marine Ltd* [1985] RPC 59 at 73:

“ ...The first [step] is to identify the inventive concept embodied in the patent in suit. Thereafter, the court has to assume the mantle of the normally skilled but unimaginative addressee...at the priority date and to impute to him what was, at that date, common general knowledge of the art in question. The third step is to identify what if any, differences exist between the matter cited as being ‘known or used’ and the alleged invention. Finally, the court has to ask itself whether, viewed without any knowledge of the alleged invention, those differences constitute steps which would have been obvious to the skilled man or whether they require any degree of invention.”

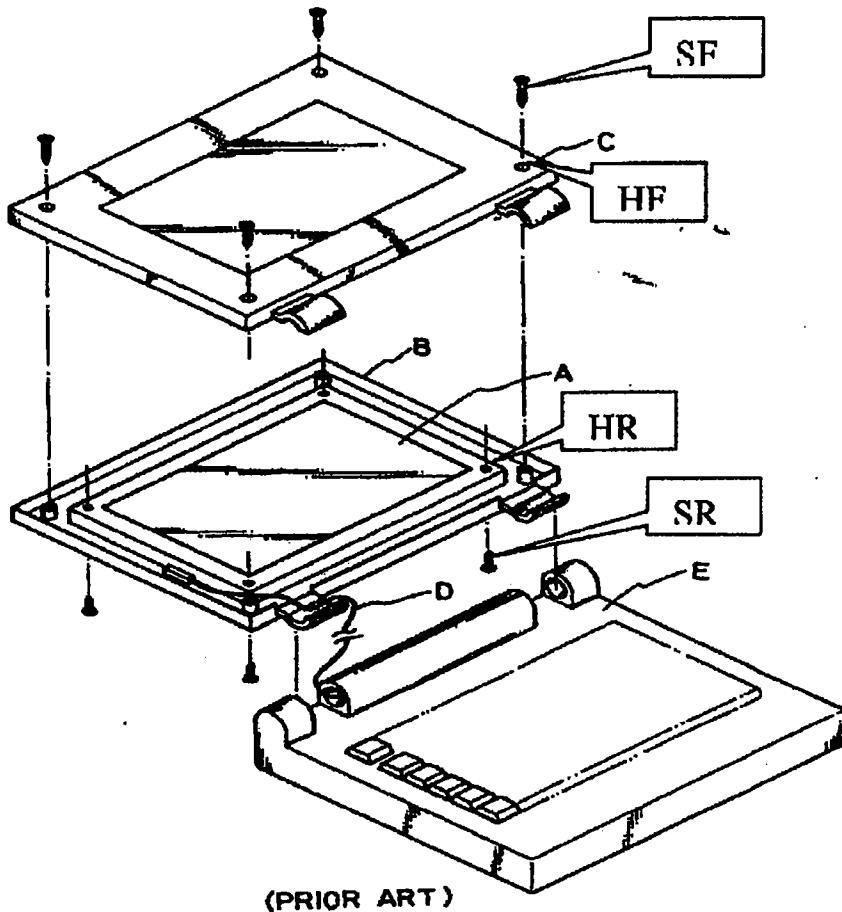
When the issue is one of obviousness, I have of course also borne in mind the numerous warnings against the dangers of *ex post facto* analysis and the temptations of hindsight. I was also reminded of the fact (which has been stressed by the Court of Appeal in recent times), that in adjudicating obviousness, it is above all the evidence of the properly qualified expert witness which matters.

90. The inventive concept of the proposal of the Patent has been mentioned several times. It is simply this: mounting an LCD module between two housings with the fastening points on the rear of the LCD module, so as to avoid the unnecessary use of ‘sidespace’. I shall also state what in my view it is not: it is *not* the positioning of the fixing means on the surface of any particular part of the rear of the module. I have recorded Mr Tappin’s objection to this on the basis that ‘the rear’ properly meant exclusively ‘behind the active area of the

glass' i.e. the display. Once again, it is necessary for me only to consider the case in relation to claim 34.

Ma (October 1996)

91. This patent is concerned with mounting a flat panel device so that it can be repaired more easily. Unusually (but legitimately), Tatung rely more on the description and drawing of the prior art (Fig 1) than on the proposal of Ma itself. I reproduce Fig 1 below²⁶.



92. I shall summarise the narrative relating to this drawing which is short (p1, ll 9-25) and has evidently been translated. Fig 1 shows a regular LCD module hinged to the mainframe E

²⁶ I have scanned this drawing from Mr Meade's skeleton of argument rather than from Ma as it conveniently shows by reference to 'SR, SF' etc where the screws (S) and holes (H) are by reference to front (F) entry and rear (R) entry.

of a notebook computer. This structure of LCD module comprises a bottom cover B, a display unit A mounted within the bottom cover B and a top cover C covered on the bottom cover over the 'display unit' A, and a lead wire D connected to the mainframe E. The display unit A is fastened to the bottom cover B by screws. The top cover C is fastened to the bottom cover by screws. The main disadvantage of this prior art proposal is its complicated mounting process, thereby rendering the repair work difficult.

93. The invention is illustrated by a '*regular* LCD module' (my emphasis). Invoking again the '*Dyson*-style mindset' of the addressee to commercial modules having side flanges, Mr Tappin suggested that modules with flanges or making use of generous sidespace would naturally come to the reader's mind and so be used. I have already considered and rejected this approach. That is not in fact what Ma shows. The constitution of Ma's module itself was however part of the common general knowledge (see above).

94. There seemed to be two factual issues between the parties on this citation. First, there was a dispute about what parts were attached to each other. Questions were asked of the experts as to what the skilled reader of Ma would make of the extended screw lines visible in the exploded diagram of Fig 1. In my view there is no need to assess this evidence if one gives the passage quoted (and Fig 1 itself) a fair and informed reading. Moreover, it will be recalled that the pre-characterising part of claim 34 was in any event part of the common general knowledge.

95. The more substantial argument related to whether the mounting of the display unit from behind really saved any side space. Sidespace saving is not of course claimed as such, the assumption being that this is automatically achieved through the claimed disposition of the elements of the device. In my judgment it is plain that Ma proposes no side flanges for fixing and that that is what the skilled man would appreciate; fixing is through the rear. In functional terms, it is difficult to see any functional difference of substance between Fig 1 of Ma and Fig 5 of the Patent. I accept that it is not clear that the fixing point is exactly at the surface of the first frame, and that as shown, the screw holes for fixing the LCD module to the rear housing are not wholly behind the glass or any part of it. The latter is in my view irrelevant (see above) and as to the former, Mr Talesfore accepted that the through screws could be replaced with blind bosses or fasteners at the back or by snap fastenings and that to do so would be a workshop modification: see D2/238-240. Ma has clearly disclosed the inventive principle of the Patent. In my judgement, the slight modification to Ma which would cause it to fall within claim 34, would not be inventive.

Hashimoto (January 1992)

96. This patent is concerned with the image display section of a miniature flat panel television set using an LCD. It is thus in a field somewhat apart from the Patent. Nonetheless, it does in my view disclose the same inventive concept. LG accepts for example that the patent discloses (figs 4 and 5 and col. 4 lines 17-25) that screw 21 is located behind the peripheral part of the frame –but, so Mr Tappin says, not behind any part of the glass. The rear fixing can in fact be anywhere behind the module: Birkenhoff: D3/336-337. However, the fixing arrangements of the LCD module differ from that claimed in that Hashimoto's LCD module is fixed both to the rear and to the front housing. There is no evidence that there would be any technical difficulty to be overcome let alone ingenuity required within this teaching, in devising alternative ways of securely fixing the LCD

module within its front and rear housings *if required*, while still using rear fixing screws to attach the module at its rear surface to the rear housing. Claim 34 is thus not inventive over Hashimoto.

The PixelVision Monitor

97. This prior user, an example of which I have examined, makes use of a conventional LCD module within moulded plastic front and rear housings. The main debate concerning this item of prior art revolved around the function and status of a separate metal frame in which the module is peripherally fixed and rearwardly enclosed before being mounted in the two part housing. Mr Talesfore calls this a 'support frame'. The PixelVision monitor may best be appreciated from a series of photographs in 6/8. I gained the clear impression that Mr Meade was relying on this citation more as an infringement squeeze (for it is indeed very similar in construction to the VX 2000 monitor) than for a destructive attack on the Patent on the ground of obviousness.
98. The metal frame has five fixing locations for attachment to the rear housing by screws introduced from the rear. One such attachment is central and was said by Mr Talesfore to be there just to give rigidity to the stand. The four others are to the corners of the metal frame. The central fixing is accepted to be to the rear of the module and on its surface and behind the display; the others are not, being below and to the side of the rear surface of the module. This arrangement therefore takes the device outside claim 34 as I have construed it-but of course, falls within the claim in this respect on Mr Tappin's construction.
99. There is another feature which takes PixelVision outside the claim. The front housing is fastened to the metal frame (and thus to the module and not the rear housing) by eight screws around its periphery, two on each side²⁷. The five rear screws then fix the metal frame, module and front housing into the rear housing.
100. There are thus two significant differences between the PixelVision mounting and that proposed in claim 34. When he first examined, PixelVision, Mr Talesfore did not like the peripheral fixing of the front housing: see footnote 27. He accepted as an alternative to his suggested remedy that it would have been obvious to fix the front housing to the rear housing as this was common general knowledge: see D1/137-141. However the experts did not give me the impression that there was any need, purpose or incentive in such a commercial monitor as this to ensure that all the back fixing points were to the rear of the surface of the module let alone behind the display. In my judgment the obviousness attack on claims 34 and 44 based on PixelVision fails.

Conclusion

101. The amendments to the Patent are refused. In view of Mr Tappin's concession, the action will be dismissed. Moreover, even if the amendments were permissible, there would be no infringement of the Patent as alleged. Though in this event Mr Meade expressed no further interest in the fate of his counterclaim, the latter evidently succeeds and in the

²⁷ Mr Talesfore found this to be both unattractive and expensive as a way of fitting the front housing to the unit and proposed some changes in his first report. This was the only change which he considered it desirable to make.

public interest at least, the Patent should be revoked. I shall hear counsel on the form of order to be made and on costs in due course.